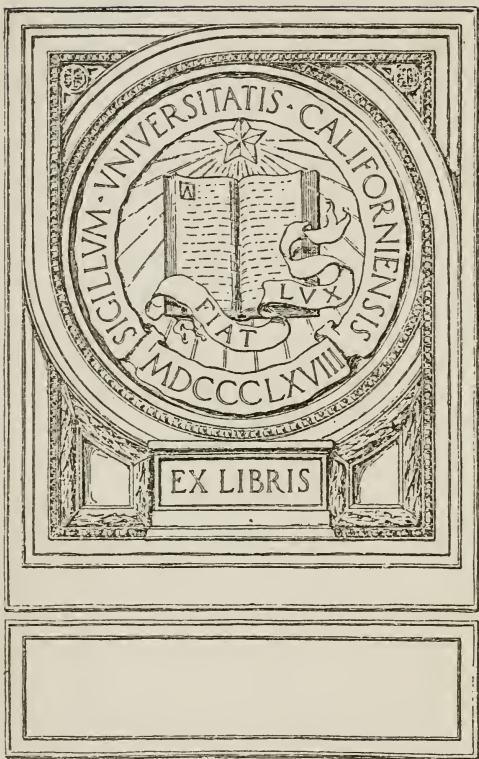


INTRODUCTION TO
LIBRARY CLASSIFICATION

W. C. BERWICK SAYERS



EX LIBRIS

**AN INTRODUCTION
TO LIBRARY CLASSIFICATION**

AN INTRODUCTION TO LIBRARY CLASSIFICATION

Theoretical, Historical, and Practical

AND

A SHORT COURSE IN PRACTICAL
CLASSIFICATION

WITH READINGS, QUESTIONS
AND EXAMINATION PAPERS

By

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LIBRARY
SCHOOL

TO THE
HEROIC MEMORY
OF
MY TWO OLD STUDENTS AND FRIENDS
HENRY W. CHECKETTS
AND
ERIC A. PEPPIETTE
WHO DIED FOR ENGLAND
"SOMEWHERE IN FRANCE"
1916

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CONTENTS

	PAGE
DEDICATION	5
PREFACE	11
PREFACE TO THE SECOND EDITION	15

PART I

THEORETICAL

CHAPTER I

Introduction. The Meaning and Purpose of Book Classification	17
--	----

CHAPTER II

A Brief Review of the Logical Principles of Classification	23
--	----

CHAPTER III

Repetition. The Notion of a Class. Natural and Artificial Classification. The Parts of a Classification	37
---	----

CHAPTER IV

The Process of Division, by Extension and Intension. The Difference between a Classification of Knowledge and a Classification of Books. The Limits of Classification	51
---	----

	PAGE
CHAPTER V	
The Parts of a Bibliographical Classification. The Difference between Topic and Form. Form as Arranging Characteristic. Arrangement by Topic, then by Form. The Index . . .	59
CHAPTER VI	
Notation. Author Marks. Book Numbers . . .	69
PART II	
HISTORICAL AND PRACTICAL	
CHAPTER VII	
Preliminary on Students' Reading.	86
CHAPTER VIII	
Historical. Early Schemes : Bacon, Brunet, British Museum, Edward Edwards	90
CHAPTER IX	
Decimal Classification	106
CHAPTER X	
The Expansive and Subject Systems	122
CHAPTER XI	
The Classified Catalogue	134
CHAPTER XII	
The Rules and Methods of Practical Classification	144

CONTENTS

9

CHAPTER XIII

PAGE

Practical Classification Methodology 154

PART III

A SHORT COURSE IN PRACTICAL CLASSIFICATION, WITH
SPECIAL REFERENCE TO THE DECIMAL AND SUBJECT
SCHEMES

CHAPTER XIV

Preliminary 166

CHAPTER XV

Method of Approach 168

CHAPTER XVI

Philosophy 174

CHAPTER XVII

Religion 180

CHAPTER XVIII

Sociology and Economic Science 185

CHAPTER XIX

Literature and Philology 192

CHAPTER XX

Test Examination I. 199

CHAPTER XXI

Science 201

	PAGE
CHAPTER XXII	
Useful (or Practical) Arts	206
CHAPTER XXIII	
Fine and Recreative Arts	211
CHAPTER XXIV	
History and its Collaterals	216
CHAPTER XXV	
History and its Collaterals— <i>continued</i> . Final Hints and Conclusion	222
CHAPTER XXVI	
Test Examination, II.	228
APPENDIX I	
Another View of the Theory of Classification	231
APPENDIX II	
The Library Association Examination in Classifica- tion	238
APPENDIX III	
List of Authorities	249
INDEX	253

PREFACE

THIS little work seems to need a preface to excuse its appearance, since it may be thought that I have already written enough, and more than enough, upon the subject of bibliographical classification. Two years ago I gathered into a volume, *Canons of Classification*, a series of essays in which I stated in concentrated form what I considered to be the principles underlying the construction of a book classification, and then focussed them upon the four schemes most generally in use in libraries. I hoped for a small circle of readers; but to my surprise the work received a comparatively wide welcome, and achieved what is not exactly usual with library manuals written by Englishmen, a circulation in America. The present volume does not make the *Canons* supererogatory; on the contrary that work, with all its imperfections, and, it may be, fallacies, is the best work I have done or am likely to do upon classification. One outcome of it, however, has been the criticism that in it I took too much for granted, that I presumed in my readers a certain acquaintance with technical terms, logical reasoning, and classification construction generally. That criticism is perhaps just.

In order to meet it I have reproduced here, after an exhaustive and somewhat wearisome revision, a series of lessons which I prepared some eight or

nine years ago at the suggestion of the late James Duff Brown for the use of students working for the examinations of the Library Association. This original purpose determined the plan of the book, and I have thought it advisable to retain it, in spite of the fact that it leaves the work full of repetitions which may be irritating to readers who have some knowledge of the subject. Throughout I have tried to be as rudimentary and as lucid as possible. I assume that my readers are beginners without the most elementary acquaintance with either logic or classification. Necessarily, in so small a compass, I have not exhausted any of the problems of classification ; every chapter could have been expanded tenfold, especially in the second half of the book, but I believe that the essential themes are all touched upon in a way that will lead students to appreciate their meaning and significance. One or two paragraphs are repeated from earlier books of mine, as I thought it would be affectation to attempt to re-write what I had written as well as I was able.

The simple hypothesis that underlies all I have written is that a general classification is primarily a schedule of the field of knowledge ; that it is possible to assume an order in knowledge ; and that the order most clearly indicated by modern scientific method is the historical order. A general book classification in its essentials is identical with a knowledge classification, and differs from it only in the extent of its subdivision, and in the provision of general and form classes and divisions, and such practical auxiliaries as a notation and an index.

I am indebted to every earlier writer and to several lecturers upon the subject. In fact, I may quote Edmund Burke's position upon a greater question to define my own upon this: "I assure you I do not aim at singularity. I give you opinions which have been accepted amongst us, from very early times to this moment, with a continued and general approbation; and which indeed are so worked into my mind, that I am unable to distinguish what I have learned from others from the results of my own meditation." The list of books which forms the third appendix will show where the best of my book has come from. I may safely be credited with the remainder.

In preparing the lessons in their original form I had much help, especially in the verifying of the references, from Mr. Henry A. Twort, and in this final form I have had the advantage of suggestions from Mr. Henry A. Sharp, who is instructor in classification to the Library Association, and from my wife.

W. C. BERWICK SAYERS.

CROYDON, 1917.

PREFACE TO THE SECOND EDITION

THE publishers tell me that a new edition is required, and express the opinion that it would be a pity if the book were not available, even for a short time. While, with all modesty, I assent to this, I am also of opinion that it is a pity to re-issue it without drastic revision, even to re-writing. But time presses, and my leisure is so limited at the moment that I can only correct, clarify and amplify a few of my statements in order to make the book more simple, and promise myself to do better as soon as my engagements permit.

To the original work, which forms Parts I. and II. of this edition, I have added (with the permission of the Library Association) as a third part my *Short Course in Practical Classification*. This I have modified, expanded, and I hope improved. Thus combined I think the two works will serve, especially if the student undertakes the suggested readings, to give a sound and systematic drilling in classification.

I have also added a new appendix in which I attempt to summarise the interesting views Mr. Hulme has advanced upon classification theory. The summary is inadequate, but if it leads the

reader to the original papers its purpose will be achieved.

I am indebted to my wife for the brief index, which is a new and useful feature of the book.

W. C. BERWICK SAYERS.

CROYDON, 1922.

AN INTRODUCTION TO LIBRARY CLASSIFICATION

PART I. THEORETICAL

CHAPTER I

INTRODUCTION—THE MEANING AND PURPOSE OF BOOK CLASSIFICATION

I. WHEN we speak of a "library," our mind has before it the idea of a number of books placed upon shelves; when of "librarianship," we think of certain duties performed in relation to those books, their selection, preservation, and distribution. We can readily believe that amongst these duties the *arrangement* of books is an important one; in fact, a little thought will persuade us that it is a very important one. We might even go farther and say it is the most important of all, because upon the arrangement of the books depends in a large degree every other duty performed by the librarian. That arrangement is book *classification*. If the books are arranged by the elementary fact of *size* they are to some extent classified, for from their size we can in many cases infer the date of their publication, since it is probable that by far the largest numbers of folios, for example, were published before 1700, and that quartos were plentiful in the eighteenth

century ; and from the age of a book we can, in the light of the history of literature, infer certain of its qualities. Again, if the books are arranged by another method, let us say in alphabetical order of their authors' names, we can infer yet other facts about them, such as to what extent certain authors are represented in the collection and by what works.

2. Such arrangements are elementary, although they have their uses. The modern method is to arrange books in whatever manner will make them most easily accessible and most useful to the readers who will use them ; and the experience of librarians leads them to the conclusion that this purpose is served best by arranging them according to their *subject-matter*. This seems to be a simple operation, but it is in fact quite complex, and for its efficient performance knowledge and careful training are demanded. Consider any book known to you—let us say Ball's *Star Land*. Its subject is stars, and we ought, if we follow our rules, to place it with all other books on stars that our library contains ; but when we have done this and have examined the contents of the books in the collection we have made, we shall see that they deal with only one part of a much larger subject, the literature about the construction and workings of the universe—with Astronomy. We must therefore bring together all astronomical works. An examination of these will reveal the further problem that in the study of the universe certain collateral studies are involved, mathematics, physics, and so on. If our classifica-

tion is to be useful in the fullest sense, books which deal with these subjects must be connected up in some way with books on astronomy. Nearly every subject upon which books have been written has these collaterals and affiliations, and the recognition of these, and the arranging of our books so that they can be followed, is the work of classification. To do this with even moderate success, we must have some slight knowledge of many subjects, but we must also have some notion of the extent of the field of knowledge so that we can recognise the greater sciences of which the smaller are parts, and be able to follow the order of a schedule of these sciences. Such a schedule, or list of subjects into which knowledge may be divided, is called a scheme, or system, of classification. How such schemes are constructed, and how used, is the matter of the following lessons.

3. I hope that my preliminary remarks may not seem to justify the conclusion that if books are arranged according to their subjects, it does not matter particularly in what order the groups of subjects themselves are arranged. A limited number of librarians favour an alphabetical arrangement of subjects in some such order as this :—

Abbeys.
Accidence.
Agriculture.
Alternating currents.
Amphibious animals.
Animals.
Aorta.
Aphorisms.

Aquarium.

Art.

Etc.

Certainly if groups of books on these subjects are arranged in this order a useful purpose is served. Any reader can easily follow it, and there is a distinct *grouping* which is of value. Closer examination will show that its value is not so great as it would be if the *relations* of the subjects were shown. The books on Abbeys have no subject relation to Accidence, nor have those on Accidence any relation to Agriculture. But Abbeys have a definite relation to Architecture, and Accidence to Philology, and its various forms of language, syntax, prosody, and so on. Therefore, although very important libraries have issued catalogues in this form, such for example as the great and valuable *Subject Index* of the London Library, such an order is not what is usually conveyed by the word classification. It is an *indexing* of subjects (as indeed the title of the London Library Index implies). A classification as it is generally understood, and as we understand it throughout this book, is an arrangement of books by their subjects according to some system which shall, so far as the physical form in which the subjects are presented allows, show definitely the relations of those subjects.

4. Such systematic classification presumes that the maker of the classification has reviewed the whole field which his subject covers, and has divided it first into its broadest divisions, and has then re-divided each of these until he reaches subjects so

small that they cannot be further divided. If his material is the whole of human knowledge as revealed in books, his schedule of divisions is called a *General Classification*; if it is only one branch of knowledge, Science, for example, or Art, or Philosophy, or Travel, it is called a *Special Classification*. In both forms various methods have been used or suggested, some elaborate, some simple, but each with the cardinal purpose, which is the justification of classification, of presenting books in the order most useful to readers. The main controversies of classification, with which I shall trouble the reader as little as possible, revolve around the question of what is the most useful order.

5. Utility to readers is the principal virtue of a classification, but it has other utilities, which warrant the assertion that this work is the most important duty of librarians. It enables a librarian to build up a library in a systematic and comprehensive manner. For, obviously, if he arranges his books in an order which shows the whole field of knowledge, the gaps in any part of the field are revealed, and (supposing literature to exist upon the subjects the gaps represent) he is able to make good the omissions. He sees at once the strength or weakness of various subjects, and is able to make his additions, and, what is equally important, his withdrawals, of books, in a satisfactory manner. Classification is consequently a most important auxiliary of book-selection and rejection, and since the provision of books is the sole reason for the existence of the librarian, its claims are sufficiently clear.

6. In order that we may be able to estimate the merits of the various classification schemes, we ought first to study their order as it is shown in the main classes and divisions of the schemes. This means that we need some acquaintance with the simple logical rules which govern their construction. We have then to recognise the various parts of the schemes, some of which are merely artificial adjustments and expedients which are necessary in order that books may be fitted into them ; to understand the keys to them in the shape of notations and indexes ; to learn how to apply them in arranging our books ; to appreciate their application to catalogues ; and, finally, to review the methods that are used to indicate individual subjects and books on the shelves. We shall also find it both useful and interesting to glance briefly at the progress of classification since men conceived the idea of writing down their views upon the order of knowledge.

CHAPTER II

A BRIEF REVIEW OF THE LOGICAL PRINCIPLES OF CLASSIFICATION

7. It is impossible to think or to reason aright unless we classify, and most people have been classifying all their lives without being in the least aware of the fact. Our most simple remarks in conversation, such as "A beautiful house," or "My neighbour has a fine dog," would be meaningless if we did not form in our minds some idea corresponding with the words "house" or "dog" when the words were spoken or heard. As it is, the words create an idea in our minds of a group of things in which people live, known as houses, or a group of domestic animals having definite qualities. Our recognition of the qualities and the accompanying mental process by which we place houses and dogs into their right groups, or *classes*, is the act of classification. Think of any object known to you as having had existence, or existing, or likely to have existence—a man, a tree, a town, an animal, or whatever you will—and you will find without very much thought that it is related in some way to other objects of a like or similar kind; that, in short, it forms part of the class of things having the qualities of humanity, of plant life, of animal life, and so on. If there are things that are totally unlike all other things in the

universe, they are unique ; but we can ignore the probability of the existence of such things for the present, and can accept as accurate the postulate that everything we know or feel or see, or may know, feel or see, is part of or is related to something else like it ; that, in short, it is a member of a class.

8. To classify, then, is to arrange things in classes. Our first need, therefore, is to be clear as to the meaning of a class. A class in its simplest statement is a group of things having a greater or less degree of resemblance or likeness to one another. In a rough fashion, a class may be said to be the equivalent of a *Genus* ; and here we meet with a logical term which requires explanation. A genus is the first or governing term in a series of terms belonging to scholastic logic known as the *Five Predicables*, which first appeared in connexion with the writings of Aristotle. To these earnest consideration should be given as it will smooth the course of the student. The Predicables are :—

Genus.
Species.
Difference.
Property.
Accident.

Briefly, a *Genus* is any group of things having likeness which may be divided into two or more things or *Species* ; and from this statement it is clear that the species are the things into which the genus may be divided. The principle governing the division is some quality *added* to the genus which is called the *Difference*. A *Property* is some quality belonging to

the whole of the genus but which does not necessarily enter into its definition. An *Accident* is some chance quality which may or may not belong to a class ; that is to say, it has no *necessary* connexion with any member of a class.

9. These definitions may seem to be formidable, but a few examples will make them clear. Since a genus is any group of things that can be divided into species, the term Animals is a genus in relation to the species lion, elephant, dog, and all other animals. Each of these animals is a species of the genus animals, but the peculiar property of a genus is that *any* group of objects may so be named in relation to the things that make up the group. Thus, while the dog is a species in relation to animals, it is a genus in relation to hounds, setters, retrievers, or other species of dogs. Again, the term hound may be a genus in relation to the species boarhound, foxhound, and wolf-hound ; and, in fact, the process can be repeated until we reach the individual dog who belongs to our neighbour.¹

10. In arriving at the divisions, or species, we have added to the genus some quality which marks off the species from the rest of the members of the genus. This added quality is the Difference, and it denotes in the species an added degree of likeness. We divide animals into lion, dog, and so on, by adding the qualities which make the lion distinct

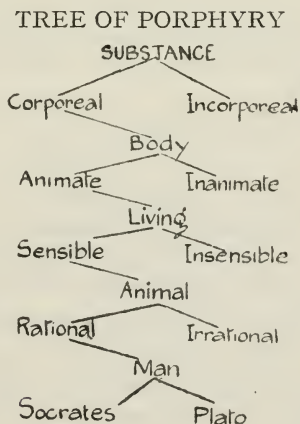
¹ It should be noted that I use hounds, etc., as genus or species in a logical and not in a zoological sense. While what is said above is perfectly true in the sense in which the terms are used, it would be inadequate for the purposes of a natural classification of mammals.

from the dog and from other animals to our idea of what is connoted by the word animal. Again, if we have for our genus House, we can divide this into species by adding as the difference the material of which the house is mainly built ; thus, stone houses, brick houses, wooden houses and canvas houses are species marked off from the genus by the possession of the quality of being built of stone, brick, wood or canvas. Regarding these things from the point of view of likeness, we see that an animal is more like any other animal than it is like any other living thing ; that one kind of lion is more like other lions than it is like any other animal ; and that a brick house is more like any other brick house, so far as material is concerned, than it is like any house built of stone, wood, or other material. Consequently each added difference increases likeness. The Difference is thus seen to be the most important principle in separating like things from unlike things which is one of the primary acts of classification. The mental operation involved in selecting or discovering the Difference is called Abstraction.

II. The term Property is used to describe some quality which is common to the whole of a genus, but which is not necessarily confined to that genus. Thus, when we think of books, we think of objects which have the property of being able-to-be-read—all books possess this quality. But there are other things which may be read, as a moment's thought will convince us. The possession of a heart is a property of man, but is not peculiar to him. The reader may easily multiply instances. An Accident

is a quality which may or may not belong to the things in a class, and which has no effect upon the other qualities in the class. In the class houses the colour of the house is an accident which does not affect the nature of the house. The size of a thing is another example of an accident; a small man does not differ in any inherent property from a big man, nor does a large triangle from a small one. In the example of books—let us say an octavo and a duodecimo edition of *Paradise Lost*—the qualities of the poem are identical, the size of the edition merely an artificial particular, an accident.

12. The application of the Predicables can be illustrated from the well-known Tree of Porphyry, as it is called, which is also one of the earliest and simplest examples we possess of a classification.



But for the operation of certain laws of mind, which

are interesting but do not enter into our study at this point, the mind would go through some such lengthy process as is shown in the Tree in recognizing any object and in classifying it. We can learn many things from this device of Porphyry which will be useful to us throughout our study. In the first place it is a classification, of an elementary kind, of Substance ; that is to say, Substance is the Main Class of the scheme ; and its divisions and subdivisions are all *parts* of that Main Class. By gradual steps the qualities contained in the whole of Substance are added in order to produce the divisions. We can express this by the simple = (equals) and + (plus) of mathematics :

Substance=Bodyless Things+Body.

Body=Substance+Corporeality.

Living Being=Substance+Corporeality+Life.

Animal=Substance+Corporeality+Life+Sensation.

Man=Substance+Corporeality+Life+Sensation+
Reason.

Plato=Substance+Corporeality+Life+Sensation+
Reason+An individual named.

Each of the first of these terms is a species when considered in relation to Substance ; is a part of it possessing the properties which pertain to Substance ; but each is also a genus in relation to the terms that follow it ; that is to say, the things that follow it are those into which it can be divided. Finally, at each stage the last plus stands before the difference that has been added to make the new division or species. Logicians tell us that the term Substance is one of great *extension* and of small

intension, and that as we proceed down the Tree the terms decrease in extension and increase in intension. And they add that extension and intension vary conversely to one another. Let us understand this before we proceed. The extension of a term simply means all the things covered by it. Substance is a very wide term ; it covers an almost illimitable number of things ; and we are able to infer little or nothing about the qualities of Substance because the things it covers are so many. Body is a wide term, but it is not so wide as Substance ; therefore it is of smaller extension than Substance. At the same time it tells us more about a certain class of things, and, in consequence, is of greater intension. Continue this method of reasoning, and we shall see that as we descend each term becomes less wide in what it contains, but more definite as to what it contains. As the number of things covered by the term becomes smaller, the smaller becomes its extension, while we are able to infer more about the things, and so the greater becomes its intension. A term in extension is said to cover all the objects to which the term can be applied ; a term in intension consists of the qualities of the objects. The quality added to Substance to produce the term of greater intension, Body, was corporeality ; to Animal, to produce Man, Reason was added, and so on. In the world of life the term Animal conveys a more definite meaning to us than does the term Life itself ; and Animal in turn tells us something less definite than does the term Man. Substance, then, is a term of wide extension but very small intension,

while Plato is a term of very small extension but of great intension.

13. The principle thus illustrated in the Tree of Porphyry pervades classification. The arrangement of the terms must be from terms of great extension and of small intension to terms of small extension and of great intension.

14. It is very important that this process should be a gradual one, and that each wide term should divide into a term rather less wide indeed, but its nearest term so far as that may be. We could divide Substance as follows :

Body
Animal
Plato

but it would be a faulty arrangement viewed in the light of the rule just stated, since there are intermediate forms between Body and Animal and between Animal and Plato. We say that the terms do not modulate properly ; and in a good classification *the process of division must be by gradual steps, each term modulating into the term next to it.* The rule governing modulation is the main rule of classification : things must be arranged together according to their degrees of likeness, and separated according to their degrees of unlikeness. In any class of things there are usually things more like one another than are other things in the class. We arrange the things that are most like one another together. Thus the first division of any class will consist of those things which have most likeness to the majority of things in the class ; the second

division of those which have a less degree of likeness to the majority of things but still a greater likeness to them than the other things possess ; and, if we proceed to arrange the whole of the objects in the class in this manner, we shall have made successive groups of things, lessening the extension and increasing the intension gradually, so that each group modulates into the next without a leap.

15. Another principle that we can learn from the Tree is that : *The terms of a classification must be mutually exclusive* That is to say, the objects denoted by each of the terms as they move downward must exclude everything except what is covered by the term. Thus, Living Being excludes every other form of Body ; Animal excludes every other form of Living Being ; Man every other form of Animal ; and Plato every other Man. *This result is achieved by using a consistent factor of division.* In the Tree of Porphyry the arrangement is really a biological one—life and its divisions are kept in mind throughout. But we can perhaps better illustrate this principle by a few simple examples. If we seek to classify a subject we must first seek some principle by which to do it. Let us suppose we wish to classify men, and we construct this schedule :

English.
French.
Chinese.
African.
Negroes.
Americans.
Eskimos.

and so on, we have begun with the principle of nationality, but have created much confusion by introducing races as Negroes and Eskimos. Clearly Negroes may be African and (in a real sense) American ; so that they fall into both places, a thing which is contrary to the principle of mutual exclusion. Or, if we classify Houses, we can do it by any principle ; let us say material :

Stone House.
Brick House.
Wood House.
Slate House.

If we add " dwelling " house or " red " house, we immediately create confusion, as any of the houses in our schedule may be a dwelling-house or may be red in colour. This error of introducing a principle alien from that with which the classifier set out to plan his classification is called *Cross-Division*, (or, sometimes, *Cross-Classification*). The principle chosen as the basis of a classification is called the *Characteristic of classification* ; in the Tree of Porphyry the characteristic is biological, in our above arrangement of men, national, in that of houses, materials ; and the rule of the matter is : *Characteristics chosen to form the basis of classification must be consistent.*

16. The value of a classification depends in no small degree upon its hospitality ; upon its generalness ; or, to put it another way, upon its exhaustive character. As far as possible it should enumerate in its schedules all parts of the subject, or give the names of every object that can be classified in the

schedule. This is a principle which it is perhaps impossible to realize in practice, seeing that to name everything in the universe in a schedule is out of the question ; it is merely an ideal ; but, in fact, the difficulty is provided for by the flexibility of a properly constructed classification, which allows the insertion of any new term at any part of the scheme without dislocating the sequence. This matter will become clearer as we proceed.

17. We have dealt at some length with characteristics and the importance of consistence in their use. The question naturally arises in our minds : what is the proper characteristic of division to be adopted in making a classification scheme ? The answer is simple : that which is most useful to the purpose for which the scheme is designed. A library of books may be arranged a hundred ways to suit a hundred different people. It is conceivable that a bookbinder will prefer them to be arranged by the material in which they are bound, the binding being the characteristic in which he is most interested. A traveller may perhaps choose a geographical arrangement irrespective of every other characteristic. A churchman may choose the characteristic of orthodoxy. In each case the classification—if it is limited in use to the particular person named—will be the most useful and therefore the best to fulfil its purpose. But when we deal with general classification—and we are thinking principally of books as a whole at the moment—we shall easily see that none of these characteristics is best for all readers. Classifiers have debated the

best characteristic at some length, and a balance of opinion favours the historical or evolutionary characteristic, by which the books shall approximate in arrangement to the development of the subjects of which they treat. The matter is somewhat complex, and in the absence of entire agreement upon it we can only repeat that the characteristics chosen must be most useful for the purpose of the classification, with the rider that the characteristic most widely favoured is the historical one.

18. So far we have rather assumed that the reader is familiar with the meaning of the word Term, and have used it freely. It may be well to formulate a meaning, however. A Term, then, is a word which is the name of any thing—or a phrase which stands for a name. Thus “ John ” is a term for a certain person ; and equally “ The man next door ” is a term which stands in the place of a name. Terms are of two kinds, concrete and abstract, the first denoting things or objects, the second qualities. Thus boy, stone, and book, are concrete terms ; while boyishness, hardness, and bookishness, are abstract terms. We need not pursue this subject further, as it can be followed in any good work on logic ; but one important principle is involved in terms which bears upon classification. That is : *terms must be used in an invariable sense in a classification.* We often notice that varying meanings are given to the same word in varying circumstances, and this variation is a great source of confusion in reasoning. For example, when we speak of a

“sharp boy,” we use the term in a metaphorical sense ; we do not mean that the lad has a cutting edge as we do when we speak of a sharp knife. We could not make a class of “Sharp Things” and produce this sequence :

Sharp Things.
Street Arabs.
Carving Knives.
Needles.
Fox Terriers.

without ridiculous results. It is essential that whatever form of the term is used, that form only shall persist throughout the scheme ; it must permit of only one meaning.

19. In the succeeding chapters it will be seen that the important logical principles developed in this chapter are deliberately repeated both briefly and in extended form. I hope that the student will not be irritated by the method adopted, because I believe that he should have constant contact with these principles until they become part of his mental equipment, and that he will find that their due appreciation transforms the work of library classification from a mere mechanical exercise into an intellectual process of living interest.

20. READINGS.—The object of the book references given in this and similar paragraphs of each of the following chapters is primarily to enable the reader to pursue the themes explained in the chapters, but literature does not exist on every theme that will be treated. It has been thought well to design the read-

ings so that, taken in order, they will form a satisfactory course of classification study, such as should engage the attention of a student for about a year.

JEVONS. *Elementary Lessons in Logic*, Chapters v. and xii.

— *Principles of Science*, Chapter xxx., pages 673-685.

RICHARDSON. *Classification*, Introduction and Lecture I., sections 1-5.

SAYERS. *Canons of Classification*, chapters i. and ii.

21. QUESTIONS.

(1) It is impossible to think or discourse if we do not classify. Explain.

(2) How does the *difference* govern division?

(3) What do you know of the Tree of Porphyry?

(4) Show how terms in extension and in intension vary conversely from one another.

(5) Terms must be mutually exclusive. Explain.

(6) What are "consistent" and "essential" characteristics?

CHAPTER III

REPETITION. THE NOTION OF A CLASS. NATURAL AND ARTIFICIAL CLASSIFICATION. THE PARTS OF A CLASSIFICATION.

22. WHEN we use a word which is the name of more than one thing—as man, mammal, plant—we assume the existence of certain *groups* of individuals or things which have certain qualities in common, the qualities of the human form and reason; the qualities of the possession of backbone, mammæ, etc.; the qualities peculiar to vegetable growths respectively. The classing in this manner brings to our mind those qualities. The existence of a class implies difference; that is to say, it implies a distinction between the objects in the class we have in mind and all objects outside that class. The process of the mind in discovering the qualities which make this difference is called the power of *abstraction*. While a class implies a difference between itself and other classes it also implies a likeness between the members composing it. For example, the hyena, ox, horse, and elephant, vary greatly in their individual peculiarities, but they resemble one another in the possession of the backbone, in the fact that they are viviparous, and possess warm blood and mammæ. These resemblances constitute the principal qualities which mark

them as members of the class mammals. But while mammal is a class (or genus) in respect of the groups (or species), hyena, ox, horse, and elephant, hyena may itself be a class or genus in respect of the various forms of hyena ; or the ox a class in respect of the various forms of oxen. Similarly, so long as objects can be divided into two groups, classes can be formed. Let the example be Man. We can form classes by dividing Man into Black, White, or Red, we can form further classes by dividing White into Aryan and Non-Aryan ; Aryan into Caucasian and Non-Caucasian (Mongolian), Caucasian into Latin and Teuton, Teuton into English and German, English into Londoner and Provincial, Londoner into East-Ender and West-Ender, East-Ender into Coster and Lighterman, Coster into Fruitseller and Fishseller, Fruitseller into John Jorkins and Jim Juggins. Or, instead of taking the first in each pair of terms just given, the second might be taken and a similar division made. We may now state our definition of a class summarily as : “ Any grouping of things or ideas which have one or more qualities in common ; the grouping to exclude objects not possessing these qualities ; such grouping implying, therefore, a difference between objects within it and other objects without it, and some resemblance between the objects within it. Such grouping may be continued within the group itself so long as any two objects exhibit differences.”

23. We have said that classification is a “ grouping of classes.” Such a grouping is called a *schedule*, or a table of classification ; and we have now to

consider the parts that go to make up any scheme of classification. Generally speaking, the designer of a scheme takes that field of knowledge which his scheme is meant to cover and divides it into a certain number of broad parts. For example, the biologist divides the living world into the two great divisions Botany (or the Vegetable Kingdom), and Zoology (or the Animal Kingdom). In his turn the botanist divides the Vegetable Kingdom into plants having cells only (cellular) and those having cells and vessels (vascular); the zoologist in his turn divides the Animal Kingdom into Vertebrates (or animals possessing a backbone) and Invertebrates (or animals without a backbone). We have here, then, a main heading and certain divisions and subdivisions :

Biology	<i>Main heading.</i>
Zoology	<i>Division.</i>
Vertebrates	<i>Sub-division.</i>
Invertebrates	„
Botany	<i>Division.</i>
Cellular	<i>Sub-division.</i>
Vascular	„

When our reading of the predicables is compared with this result we see that Biology is the *genus* from which the *species* Zoology and Botany are derived; and that in turn Vertebrates and Invertebrates are species of the genus Zoology; that cellular and vascular plants are species of the genus Botany; that all the species have the *property* of life in common, that the possession of a vegetable or an animal structure is the *difference* between the two first divisions; that the presence or absence of

the backbone constitutes the difference in the subdivisions of Zoology; and the possession of cells, or of vessels, constitutes the difference in the subdivisions of Botany. *As all classification proceeds by similar methods, we infer that all classification is governed by the principles laid down in the five predicables.*

24. A classification scheme has been shown to consist of classes, divisions and sub-divisions. Various terms for these are used by classifiers, but the following will serve for our purpose. The first great groupings of a subject are its main classes, the second groupings are its divisions, the third groupings are its sub-divisions, and the fourth its sections. This differs slightly from the nomenclature just used, but the matter is of small consequence; hence

Science.	<i>Class.</i>
Biology	<i>Division.</i>
Botany	<i>Sub-division.</i>
Cellular plants	<i>Section.</i>

But the process of differentiating (or descending the steps of the schedules) between one term and the next, is called indifferently division or sub-division. We have shown the schedule of the main divisions and principal sub-divisions and sections of Biology. The process is similar when the classifier has universal knowledge to classify. Dr. Richardson, for example, has attempted to arrange all knowledge into four classes, as follows :

- Hylology (or unorganised matter).
- Biology.
- Anthropology.
- Theology.

James Duff Brown attempts it thus :

- Matter and Force.
- Life.
- Mind.
- Record.

Melvil Dewey arranges it :

- Philosophy.
- Religion.
- Sociology.
- Philology.
- Sciences : Natural and Mathematical.
- Useful Arts.
- Fine Arts.
- Literature.
- History.

while Charles Amni Cutter has classes as follows :

- Philosophy.
- Religion.
- Historical Sciences.
- Social Sciences.
- Sciences and Arts.
- Useful Arts.
- Athletic and Recreative Arts.
- Fine Arts.
- Arts of Communication by Language.

Each of the class names (or headings) arrived at thus by the classifiers excludes all the material, or objects, which may be included in the other headings—the headings are mutually exclusive. The classifiers then proceed to sub-divide each class into its broadest parts, again making each term exclude all the objects embraced by the other terms.

The process is continued by dividing the divisions into sub-divisions, and dividing and re-dividing these, observing the same rule of mutual exclusion, until as minute a schedule is obtained as is necessary for the purpose of the scheme. Thus, Richardson, proceeding from Anthropology, gets this division :

Anthropology.
 Psychology (human).
 Aesthetics.
 Literature, etc.

25. What order then should be observed in making the division? What principle should guide us in our choice of headings? In formal language, what is the *characteristic* that shall be the basis of the arrangement of our classification? The logical rule, which, we have already quoted, declares that "characteristics used in classification must be essential to the purpose for which the classification is intended." But what is an essential characteristic? Examples of the meaning were given in section 17, and in applying classification to a *special* subject, the bearing of the canon is clear; but what is the essential characteristic to be kept in view in an arrangement of all knowledge? We shall perceive this by understanding that a classification should enable the mind to retain (to remember) the characteristics (qualities or properties) of the objects classified. Hence, that arrangement is best which is according to some feature or features *inherent* in the objects, by which we are enabled to infer the largest number of the qualities of the objects.

To take a simple example ; if we classify bottles by the substance of which they are made—earthenware, tin, glass, china, we arrange them by some property inherent in, essential to, the bottle ; we obtain definite ideas from this arrangement of the brittleness, opacity, and derivation of the bottle. The assumption is that we have arranged our subject by an essential characteristic ; i.e., the substance of which the object is made. If, on the other hand, we classify bottles by their sizes, we increase the extension of our name, bottle, considerably, and lose much of the definiteness of the other method. The size of the bottle is an accident—therefore not an inherent characteristic. Consider another example. Men may be arranged by the colour of their hair, but this will not give us a very logical scheme. Red Indians, Chinamen, Negroes, and Caucasians may all have black or other coloured hair, and our grouping would provide various elements of confusion ; the colour of hair is an accident. But if we arrange men by the *shape* of the hair, we get a very different result. Caucasians have hair which in section is circular in shape ; Mongolians have hair which is oval in section. Hence, from a hair of either of these we are able to infer a whole set of qualities which belong to the race Caucasian or Mongolian, as the case may be. We have here inherent characteristics, essential to the types of men in question.

26. A definite turn has been given to this question by Dr. Richardson, who asserts that the order of classification is the order of things ; that in a sense

every object in Nature is already classified, and that our apprehension of that existing order is knowledge. To state it more simply. A Creative Power has ordained that the things in nature develop from earlier things ; that their likeness is a result of their relationship ; and that the original form or forms from which they have developed were few and simple and that in the course of development the forms have become many and complex. This is an elementary statement of the great principle of evolution. The law, then, that Richardson would convey is that a classification of knowledge, whether in nature or in books, should follow the order of evolution ; that it is the business of the classifier to ascertain, so far as the progress of human knowledge makes it ascertainable, what that order is, and then to frame his classes in accordance with it, so that the resulting system will show the development of things.¹

27. One of the difficulties of the student is to differentiate between Natural and Artificial classification, and we must pay careful attention to this question. Stated briefly, it is this : *A natural classification is one that exhibits the inherent properties of the things classified ; an artificial classification is one in which the arrangement depends upon some arbitrarily chosen characteristic or accident of the things classified and has no direct relation to their inherent properties.*

¹ Compare Richardson, page 18 *et seq.*, with *Canons of Classification*, sections 26 *et seq.*, and 43 *et seq.* A quite different view of the order of book-classification is that propounded by Mr. E. Wyndham Hulme, a brief outline of which is given in Appendix 1.

The example given by Mr. L. Stanley Jast deserves to be remembered.¹ He points out that the consonants of the alphabet may be arranged artificially by the position the letters occupy in space, and we should get some such result as this :

1. Letters resting on the line, *w, x, r, c, m, n*, etc.
2. Letters resting on and rising above the line, *d, b, l, t*, etc.
3. Letters passing through the line, *p, q, g*, etc.
4. Letters passing through and rising above the line ; *f* is the only example.

But this arrangement conveys nothing about the letters except the accident of their shape. If, on the other hand, we arrange letters by the parts of the mouth, throat, etc., brought into use in their pronunciation, as shown in the arrangement of consonants in Morris's *Primer of English Grammar*, Chapter II., or any other good grammar, we get a natural classification into :

Gutturals.
Palatals.
Dentals.
Labials.

which tells us of their method of pronunciation and enables us to gather how they will combine with vowels and with one another. Practically the whole history of the classification of knowledge is a gradual working forward from artificial schemes of arrangement to more and more natural ones. In the development of Botanical classification ; for example, Cæsalpinus, one of the earliest classifiers,

¹ In some lectures at the London School of Economics, 1905.

in 1583, divided plants into the very artificial divisions, Trees and Herbs, and then arranged the plants in each by the situation of the seed-vessels; Morrison, who followed, founded the system, afterwards developed by Ray, of Flowering and Flowerless Plants, and divided the former into Monocotyledons and Dicotyledons; Tournefort divided by the presence and form or absence of the Corolla; Linnæus, however, produced a more artificial system, which proved a set-back to the more natural scheme of Ray, and in it he arranged plants by the number and mode of arrangement of the floral organs. Now, however, the scheme, first propounded in 1759 by Bernard de Jussieu, which adopted the primary divisions of Ray, has been developed into what is called the Natural scheme. This arranges the vegetable kingdom into two great groups dependent upon the cellular and vascular structure of plants, and re-divides these into :

Cellular.

Acotyledons =without seed lobes.

Vascular.

Monocotyledons =one seed lobe.

Dicotyledons =two or more seed lobes.

We have here as near an approach to a natural classification as is possible in the present state of our knowledge.¹ A similar development from an artificial to a more natural arrangement can be traced in Zoological classification. Aristotle formed first

¹ I have thought it best not to confuse the student by referring to the later developments of botanical classification, such as Engler's; I only state a principle.

two broad classes: (1) Animals with blood, and (2) Animals without blood, an obviously defective classification, since all animals possess blood; he meant: (1) Animals with red blood, and (2) Animals without red blood. But Aristotle also put forward as a correlative of red blood the possession of a bony vertebral column; those without red blood lacking this vertebra. This distinction of vertebrates and invertebrates is the basis of the modern natural arrangement. However, Pliny, who adapted erroneously a part of Aristotle's arrangement, produced an artificial classification which depended for its characteristic upon the element on or in which the animal lived; hence

Land animals.

Aquatic animals.

Flying animals.

an arrangement entirely independent of the primary structure of animals, as clearly there are both vertebrates and invertebrates in any or all of these groups. This general scheme persisted for many centuries, until Ray went back to Aristotle's broad groups, and considered anatomical structure as the basis of the arrangement. Linnæus, again, created an artificial system for zoology, as he had done for botany, but it was only partly artificial

Mamalia.

Aves.

Amphibia.

Pisces.

Insecta.

Vermes.

The artificiality lies in the fact that the arrangement did not depend upon the distinction of natural groups, but took isolated features of internal and external structure as characteristic. The modern natural system was founded by Cuvier in 1812, and the arrangement arrived at was based upon comparative anatomy; it embraced the two groups, vertebrates and invertebrates, and arranged the organs of each according to their dependence upon one another; in logical language, according to their correlations.

We do not intend to give here more examples of natural as opposed to artificial arrangement than are necessary to make the distinction clear; but the subject may be pursued farther in the various standard text-books on science, and in the article on Classification in Rees's *Cyclopædia*, an old work, but one still retaining authority upon this question. We may note in passing that the natural classification in Chemistry is by the potentialities of substances; and there is a very beautiful example of classification in the arrangement of crystals, which may be studied in Jevons's *Principles of Science*, chapter 30, pages 685-689, or in any good text-book on crystallography.

28. It should now be clear that if a natural classification deals with inherent properties of things, and if it shows the correlations of things, the conclusion follows that to classify books in a natural order the arrangement must be according to their subject-matter, not to their size, appearance, binding, or the materials of which they are made; must show

the affinities of subjects—how one is a necessary part of another ; how some one or more books precede, and some one or more succeed, any given book. Thus we see that an arrangement of books alphabetically by authors is in the main artificial. It brings all Jones's books together, and if Jones writes upon one subject, and we know that subject, it tells us what these books contain. But authors do not fall into distinct categories of this kind, and the alphabetical order tells us actually nothing about the books. In like manner, an arrangement of books by accession numbers tells us absolutely nothing of their contents. A chronological arrangement of books is also artificial ; it informs us, of course, that certain books appeared in a certain year, and if that year was marked by some peculiarity of thought, some specific kind of event, these books will probably reflect such peculiarities ; but we really learn very little from such an arrangement. Nearly all book classifications are a compromise between the artificial and the natural arrangements. In the Dewey classification, for example, there are certain " form " classes as they are called—Literature will serve for an example. In this class the books are grouped by the accident of the language in which they are written and then by the form in which the subject-matter is cast ; i.e., Poetry, Drama, Essays, Letters, etc., and nothing is shown of the *subjects* of the poems, plays, essays or letters, which may deal with love, science, or what not. Under these forms the arrangement is again the purely artificial one of chronology. On the other

hand, the classification of such classes as Science obeys the *natural* order.

29. READINGS.

FOWLER. *Inductive Logic*, chapter ii., section 2 to end of chapter.

JEVONS. *Elementary Lessons in Logic*, chapter xxxii.

— *Principles of Science*, chapter xxx., pages 685-710.

RICHARDSON. *Classification*, Lecture II., sections 6-10.

BROWN. *Library Classification and Cataloguing*, chapters i. and ii.

— *Subject Classification*, Introduction, sections 5-6.

Read also the article on "Classification" in *Ree's Cyclopædia*.

30. QUESTIONS.

(1) Define the difference between natural and artificial classification.

(2) Describe the Linnæan classification of plants, and compare it with the Natural System.

(3) What is the *difference* in the classification of Zoology?

(4) What is meant by evolutionary order?

(5) The "Subject Classification" is said to be according to evolution. Is it, and can you prove your opinion?

(6) Explain the statement, "Nearly all book classifications are a compromise between the natural and artificial arrangements."

CHAPTER IV

THE PROCESS OF DIVISION, BY EXTENSION AND INTENSION. THE DIFFERENCE BETWEEN A CLASSIFICATION OF KNOWLEDGE AND A CLASSIFICATION OF BOOKS. THE LIMITS OF CLASSIFICATION

31. THE Latin motto of science, which expresses the fact that nature never makes a leap, is also true of Classification; there must not be leaps in the divisions of a scheme. *In the process of sub-division, the steps should be gradual, each term modulating from the term before it, and into the term following; thus exhibiting perfect co-ordination of subjects.* It can be shown from any logical or evolutionary scheme of classification that the main classes to some extent modulate into one another; where this cannot be affirmed—as in the main classes of the Dewey classification it cannot—the arrangement is theoretically at fault. We must not confuse theoretical perfection with practical usefulness however; what we wish to affirm here is that, generally speaking, such modulation exists. In the Subject Scheme for example :

Matter and Force
are the factors from which are developed
Life,
which is the factor from which is developed

Mind,

which in its turn gives rise to the chronicle of its workings in

Record.

Here we can trace the subject forward and backward. So, when we deal with divisions and subdivisions, each one should modulate gradually into the next, the extension of the terms becoming smaller, their intension becoming greater.¹

32. The schedule which results from the arrangement of subjects in a descending order of steps, if it is carried out thoroughly, will be exhaustive. That is to say, each division will provide a place for each and all of the subjects that can possibly be ranged under it. To repeat one of our fundamental canons : *The enumeration of the parts of a classification must be exhaustive.* In this relation the rule formulated by Richardson applies : " The value of a system is increased in direct ratio to its generalness of use." It is perhaps necessary to explain a little further. A classification of universal knowledge must embrace all past, present, and possible knowledge ; although the vortex theory of the earth, the search for the philosopher's stone, the endeavour to square the circle, may be absurd theories, there must still be places for them in a general scheme of classification ; and no scheme can be universally useful unless it does admit such places. But it must not be assumed that every one of these topics need be *named* in the scheme ; we would only assert that it should be possible to insert any new, or newly-

¹ Compare *Canons of Classification*, sections 26, 44-47.

discovered, topic at any point without dislocating the general sequence. This is done in practice by finding the nearest related head in the scheme and making a place for the new topic where it will most nearly modulate into the terms before and after it. Thus the rule of exhaustiveness applies to general schemes ; but it does also to schemes dealing with a special topic. All the conditions we have mentioned would apply to a classification of butterflies or of photography. This quality of hospitality in a classification is called variously its adjustability, flexibility, or expansibility.

33. So far our attention has been directed to those general principles which govern both the classification of knowledge and the classification of knowledge as contained in books. It is hardly necessary to say that there are schemes of classification directed solely to the arrangement of books ; and we must now make a clear distinction between the two forms of classification. That of knowledge is limited only by knowledge itself. Our *ideas* of things can be so completely analysed that we can arrange them in perfect sequences ; the schedules can modulate with perfect and gradual steps. *But the classification of books is conditioned by the physical form of books.* If treatises were written on every specific subject in the universe, we might approximate to the knowledge classification in our arrangement of books ; but books are complex things : the general treatise hustles the monograph ; there is the encyclopædic work and the work of composite nature which treats of two, three, or more subjects. It is clear that there can be no

absolute, perfect co-ordination in the arrangement of the subject-matter of these various works. The designer of a bibliographical system must adjust the knowledge classification so that it will embrace as many books as possible in their entirety, and must then compromise. It must be clearly borne in mind, however, that the classification of knowledge should be the basis of the classification of books; that the latter obeys in general the same laws, follows the same sequence. A little consideration will show us how books overlap. Consider, for example, a general work dealing with forty distinct topics—one scientific, another artistic, another historical, and so on. In classifying such a book it is clear that if we put it under science we lose or ignore all the other subjects of which it treats; the book is *composite* and is not co-ordinated with the books around it. But a book is a concrete, indivisible thing, and we cannot split it into forty parts and assign each part to its proper subject. We can only treat the book as a unit and put it into one place. Therefore, unless we adopt some artificial expedient, some part of the significance of the book will be lost by our classification. One solution of the difficulty would be to obtain forty copies of the book and place one under each topic represented in the book, but I need hardly emphasize the fact that recourse will not frequently be made to such a method. Consequently, as he can place the book only under one heading, the classifier has designed, as we shall show more fully later, a *generalia* class in his scheme. In the Dewey and Cutter schemes

such a class exists called General Works, in Brown it is called Generalia. This class receives all such works as cannot be received by any one single class, but which overlap several classes. Where a book deals with only two or three subjects this generalia class is not used, but the book is placed under the predominating topic, and *references* are made from the second or third topics, as we shall make clear later. The generalia class is simply for books of such miscellaneous subject-matter that they cannot be referred logically to any class. It was partly on this ground of the composite character of books that Jevons called book classification a "logical absurdity." His habitual use of dialectical refinements, and, probably, his want of familiarity with book classification, led him to overlook the many practical adjustments the librarian makes in adapting the classification of knowledge to the requirements of a classification of books.¹

34. Although we have found an arbitrary and not perfect place for our book of forty topics (at the same time it is the only practical and feasible place), it may be very desirable to record the forty topics so that the material is brought within the cognizance of the students of each of these topics. This brings us to a discussion of classified cataloguing. The classed, subject, or classified catalogue, as it is indifferently called, was really the origin of modern bibliographical classification. It is only recently that classification to any great extent has been

¹ The best discussion of Jevons's declaration is that in chapter vi. of Brown's *Library Classification and Cataloguing*.

applied to actual books on shelves ; and in recent years much of the criticism directed against the classification of books has been based upon a confusing of the functions of these two forms of classification. A book on the pyramids may be historical, architectural, or antiquarian ; in fact, it may treat the subject from all these points of view ; but, as Duff Brown has pointed out (in connection with a similar work on the steam engine), the subject is the pyramids, and under this heading the book would be placed irrespective of the method of treatment. It may, however, be desirable to bring the book to the notice of historical, architectural, and antiquarian students. This is done by means of the *classified catalogue*. A catalogue may be arranged in exact accord with any bibliographical scheme ; and it has this signal advantage over books on shelves. While a book itself can only go in one place, in the catalogue all the elements that go to make up the book can be dissected, and each one placed under its specific heading. Consequently, our book of forty topics would receive forty entries in the catalogue ; and our book on the pyramids would receive entries under history, architecture, archæology, in addition to that under the pyramids. How far such *analytics* should be carried out in a classified catalogue would depend entirely upon the value of the parts of such composite books. Clearly trivial articles or chapters would not be catalogued, and it would be a rare occurrence to make so many as the forty entries required by our hypothetical example. All we wish to emphasize at this point

is that while a book is a rigid, concrete article, an indivisible entity, and therefore a thing which can be placed in only one position, the *idea* of a book—that is to say its name—can be written or printed in a hundred or a hundred thousand different places. Similarly, the ideas—or names—of its component parts, its chapters, can be separated; they can, therefore, be recorded, according to their topics, in as many places as we please in the catalogue. A perfect classified catalogue analyses books in much the same manner as a chemist analyses chemical compounds. Nevertheless, let it be remembered that the majority of books *do* treat of individual topics, such as the sea, butterflies, English history, and so on, and may therefore be classified in a specific place in the classification scheme.

34. READINGS.

BROWN. *Library Classification*, chapter vi.

RICHARDSON. *Classification*, Lecture II.

JEVONS. *Principles*, chapter xxx., pages 710–22.

BROWN. *Subject Classification*, Introduction, sections
1–15.

35. QUESTIONS.

(1) Demonstrate and explain how the functions of a classification and those of a catalogue are often confused.

(2) Rearrange the main divisions of Dewey in an order more perfect theoretically, and give reasons for each of your changes.

(3) “A bibliographical classification is conditioned by the physical form of books.” Explain.

- (4) Demonstrate that a classification never "makes a leap" in its process of subdivision.
- (5) Explain what is meant by the flexibility of a classification.
- (6) What are the functions of a "generalia" class?

CHAPTER V¹

THE PARTS OF A BIBLIOGRAPHICAL CLASSIFICATION.
THE DIFFERENCE BETWEEN TOPIC AND FORM.
FORM AS ARRANGING CHARACTERISTIC. AR-
RANGEMENT BY TOPIC, THEN BY FORM. THE
INDEX

36. WE are now in a position to deal solely with bibliographical classification. As the matter is of importance, the reader will excuse a brief recapitulation, in the shape of a long definition, of the cardinal principles we have gathered from our study of the subject so far. We may define thus: "A bibliographical classification is an adaptation of a knowledge classification to the peculiar form of books. It obeys the same rules and follows the same order of division as a classification of knowledge, but the extent of that division is strictly conditioned by the physical form of books. Such a scheme must proceed always in gradual steps from the general head to the special, the characteristic chosen for the arrangement being the most useful one for the purpose for which the scheme is designed; its terms must be mutually exclusive; and must be used in an invariable sense throughout; the enumeration of its parts must be exhaustive; it must

¹ The student should have the Decimal Classification at his elbow in reading this chapter, and should look up the examples as cited.

provide places for past, present, and possible knowledge, by permitting the insertion of any fresh topic at any point ; and, finally, for its practical application, it must be equipped with a notation and an index."

37. We have now a clear idea of a schedule, and we will take the Decimal Classification and study it, not with a view to explaining this particular system itself—that we shall do with some fulness later—but with a view to understanding aright the parts of a bibliographical scheme. It will be seen that Dewey divides the field of knowledge strictly into nine parts :

- 1 Philosophy.
- 2 Religion.
- 3 Sociology.
- 4 Philology.
- 5 Natural Science.
- 6 Useful arts.
- 7 Fine arts.
- 8 Literature.
- 9 History.

If we think of any book whatsoever that treats of a specific subject we shall recognise that a place can be found for it in one or other of the divisions before us. If all books dealt with specific subjects the schedule in its main divisions would be complete. But every book does not deal with a specific subject, as we saw in the last chapter. The encyclopædic or composite book remains to be dealt with, and to meet this need a tenth or "generalialia" class, called General Works in the Decimal Classification, is provided. The usual definition of a generalialia class

is one in which can be placed works which, although dealing with many or all of the other divisions of the schedule, are of so miscellaneous a nature that they cannot be said to belong to any particular one. Brown has broken away from this orthodox idea, and he submits instead (see the introduction to the Subject Classification, section 6) that the subdivisions of generalia are to hold not only all general works, but works on all such subjects as are pervasive; that is to say, subjects—such as the logical and mathematical sciences—which are used in many branches of science, but are peculiar to none of them. At present, however, we may regard generalia as the “waste-paper basket” of the classes, to receive works so composite that they will not go into any single subject class. Hence we see that Dewey’s 000 embraces bibliography, library economy, cyclopædias, general collected essays, magazines, transactions, newspapers, polygraphy, etc., all of which are of composite character. The generalia class is therefore the first adjustment of the knowledge classification to the form of books.

38. If we look at the remainder of the main divisions of the Decimal schedule we shall recognise one or two other things. We shall see that all the divisions from 1 to 9, with the exception of 8, deal with distinct subjects; for example, Philosophy, Religion, and History are definite subjects, conveying notions of particular forms of knowledge to our minds. But in Literature it is not so; Literature is a form. Here we arrive at an important distinction in classification. *Every bibliographical scheme has*

topic or subject classes, and form classes. What the subject class means is quite clear to us ; in it the book is arranged by its subject or its predominating subject ; in the form class, on the other hand, the book is arranged not by the subject but by the form in which the subject is presented. Thus, the class Literature subdivides by the accident of language, which, it may be noted, has no definite bearing upon the subjects of the books. The sub-divisions are poetry, drama, fiction, essays, oratory, letters, satire and humour, and miscellany. If I mention poetry, you have immediately the notion of words cast into a metrical form, but from their subjectival side you can infer nothing ; poetry may be religious—as Milton's ; didactic—as Pope's ; it may be classical—as some of Tennyson's and much of Keats' ; it may deal with love, wine, or war ; but we learn nothing of this from the word poetry. But all of these poems, irrespective of subject, are arranged together simply by their form. Similar reasoning applies to drama, fiction, essays, oratory, or letters ; these may deal with any subject, but in the arrangement that is ignored. (The student should, however, bear in mind carefully that a book of orations, or essays, or letters dealing all of them with one topic, would not be placed in a *form* class ; thus " Letters on Evolution " should be placed in Biology under Evolution, while " Speeches on Tariff Reform " would go under Political Economy ; but " Speeches on Various Occasions," or " Letters to My Family," would deal with no special subject and would therefore be relegated to the form class.)

To crystallise the above into a definition: *A form class is one in which the book is classified not by its subject-matter, but by the form in which the subject-matter is presented.*

39. The distinction just made is a very simple one ; but there is a somewhat more difficult application of the principle of " form " in classification to which I invite the particular attention of the student. If we glance at the full tables of the Decimal Classification, say under 500, Science (but any other division will serve as an example), we shall see that the beginning of the schedule of the subject embraced by the class is devoted to general works on the subject, and may be defined in the same terms as the main generalia division, except that instead of applying to the whole classification, as does the main class General Works, it applies to the class Science only. Notice, also, that the subdivisions 501 to 509 are a *specialized* replica, to some extent, of 000-090, the sub-divisions of General Works. To quote at random : 501 deals with the philosophy, the theory, or the utility of Science in General ; 503 with dictionaries of Science in General ; 506 with periodicals of Science in General ; 509 with the history of Science in General. Now these are the " form divisions " (or, as they are sometimes called, the " common sub-divisions ") of the subject Science in General. Special " forms " differ from general " forms " in this way. The periodical *The Spectator* deals with all kinds of topics, general history, politics, literature, art, science ; in fact, everything comes within its scope. Its place in a

scheme of classification is, therefore, under General Periodicals ; in the Decimal scheme it goes under 050. On the other hand, the periodical *Nature*, as compared with *The Spectator*, is a special periodical, because it is devoted to Science. It will, therefore, go first under Science—which is its “subject”—and then, within the class Science, under periodicals which accord with its “form.” Note again that while *Nature* is special as compared with *The Spectator*, it is general in regard to the class Science. It is general, therefore, in comparison with *The British Astronomical Association Journal*, which deals entirely with Astronomy, or *The Journal of the Chemical Society*, which is special to Chemistry. Similarly, as we pass down the general form divisions of Science, 501–509, we must remember that the same rule applies. Premising a work on “The Evolution of Scientific Ideas since Thales,” we must place it first under its subject, which is evidently General Science, and then under its form, which is evolution, or history ; hence in the Decimal scheme under 509. When we come to more minute heads the same rules still prevail. The main division Physics is equipped with a series of form divisions, philosophy, dictionaries, etc. ; see 530·1 to 530·9. Thus a book on the theory of physics will be arranged first by its subject, Physics ; then by the form in which it is presented, theory, i.e. philosophy ; hence in the Decimal scheme under 530·1. In learning this distinction between form and subject, we have become cognizant of a rule of practical classification, which we shall develop later, “Classify ‘first by

topic, then by form,' except in the form classes, where form is paramount." Although we have taken our examples from Dewey, it must be remembered that every other scheme is equipped with Form Classes. In the Subject scheme the form *divisions* under the topic classes are obtained by means of *Categorical Numbers*, which have the same functions as the numbers 501-509 in Dewey. This, again, we shall deal with further when we come to consider the Subject scheme itself.

40. From the two foregoing paragraphs we may infer a useful but rather subtle division of form into *outer* and *inner*. Outer form is said to be objective ; that is to say, it represents the physical make-up of a book. A periodical has a miscellaneous form which appears in various recognisable physical shapes ; an encyclopædia has the obvious outer arrangement of an alphabetical or classified order of subjects ; poetry has the outer form of metre ; and dictionaries, collections of essays, and most of the works which appear in the generalia or form *classes* have outer form. Inner form is subjective, and usually represents the method of treatment ; thus, a work on the philosophy of science is one upon a specific subject treated in a special form ; the history of geography is similarly a method of treating a subject ; the theory of history is another example, and each of these methods of treatment is said to be the inner form of the book. A few examples of each kind will perhaps make the distinction more obvious :

Outer form :

The Encyclopædia Britannica.
Dictionary of Dates.
Nineteenth Century Review.
Essays in Little.

Inner form :

The History of Science.
The Theory of History.
The Philosophy of Languages.

Outer form, in brief, depends upon the physical arrangement of the matter in books ; inner form depends upon the method according to which that matter is written. Examination will show that while the generalia and form classes of Dewey are mainly for books that have outer form, the form divisions are largely for those having inner form.

41. A valuable feature of a bibliographical classification scheme is the *Index*. The index should include all the names (terms) mentioned in the schedules and all the synonyms of these names. It should show all the minute parts of a subject, so far as practicable, parts which are included in the terms in the schedules but are too minute to be set out in them. The principal value of the index is to ensure that a subject always has a constant place in the scheme. For example, when Radium was discovered the treatises expounding it demanded a *decision* in classification. Some libraries placed them under electricity (Dewey 537) while others placed them under the Metals in Chemistry (Dewey 543). The latter head is to be preferred, as it brings Radium beside Uranium and its other cognates ; but if the classifier chose electricity, and indexed his choice,

he could use his index as a check on future placings, and so avoid the confusion of cross-classification which would arise if he placed later books under chemistry, having forgotten his first choice. Hence, when a decision is made, it is important that the classifier shall enter it in the index of his scheme as a check on the future placing of books on the subject.

42. Indexes are of two kinds, *specific* and *relative*. The specific index shows only one place for each subject, and the index to the Subject scheme is of this variety. It does not show the relations of subjects.¹ A relative index on the other hand, shows all the relations of subjects. For example, in the Subject scheme the topic Sugar receives references I885, which deals with it as an industrial product, and E348, which deals with the sugarcane as a member of the botanical group. The index ignores the use of sugar in confectionery, and in fact any other aspect of it. The reference is really one reference to Sugar I885. This is called special, or specific indexing. On the other hand, the Decimal scheme shows the following under the heading :

Sugar, adulterations	614.311
cane, agriculture	633
Manufacture	664.1
organic chemistry	547.3
refinery	664.1
refining, air pollution	614.734
vegetable drugs	615.352

Here we are shown all the functions of Sugar, all the correlatives of the topic. Now, there must be

¹ See *Canons of Classification*, sections 36, 59, 63, 94.

places in the Subject scheme for all these correlatives, but they are not shown in the index. The Decimal therefore has a relative, the Subject a specific index. The student should note carefully that an index is an aid to, not a means of, classification. Books should always be placed by study of the main schedules, with a distinct understanding of the heading under which they are placed. Placing by the index would lead to all kinds of ridiculous anomalies.

43. READINGS.

JEVONS. *Principles of Science*, chapter xxx., pages 722-34.

BROWN. *Library Classification*, pages 59-61.

SAYERS. *Canons of Classification*, sections 26, 36, 44-7, 59, 63, 94.

44. QUESTIONS.

(1) One librarian asserts that Haddon's *Evolution in Art* should be classified under evolution; another that it should be placed under art. Which do you prefer, and why?

(2) What is meant by "topic" and "form" respectively?

(3) The periodical *Nature* is special in relation to the whole of knowledge, but general in relation to science. Explain.

(4) How might the placing of books by means of the index lead to absurd anomalies?

(5) Define the difference between a relative and a specific index. Which form is the better one? Illustrate your argument.

(6) How would you distinguish between history as a subject and as a form?

CHAPTER VI

NOTATION. AUTHOR MARKS. BOOK NUMBERS

45. WHENEVER names or phrases are constantly repeated in any science or art, the workers in that science or art construct a series of abbreviations or symbols to represent such names or phrases. In chemistry, for example, the elements are represented by initials or arbitrarily chosen letters; as H=hydrogen, K=potassium, Be=beryllium, and so on, symbols by which chemical combinations can be expressed briefly. Similarly, the classifier of books produces a symbol to stand for the name of a class or any division or section of it. When arranging books on the shelves it is usual to indicate the subject which is the basis of the order upon the books, and it is clear that in arranging a number of books, say upon Cosmogony, the classifier cannot write upon each the name of its topic, as

Cosmic evolution.
Nebula hypothesis.
La Place's theory.
Fayer's theory.
Darwin's tidal reaction.

such writing would be most inconvenient. He writes instead, if he uses the Expansive system, the following expressions

L RYC
 L RYE
 L RYI
 L RYK
 L RYL

which represent respectively the names of the subjects. These symbols are called the notation of a classification, and the letters or figures of such a notation are variously called the call marks, class-marks, arranging-numbers, placing-numbers, or classification-numbers of the scheme.

46. Classification *theory* does not presuppose notation, and classification itself—which is arrangement—must not be confused with notation, but without it the *practical* application of any scheme is impossible. A notation has been defined as a shorthand sign to represent the name of a class or any division or sub-division of a class. In the earlier writings on classification it was assumed that the notation was chosen—or designed—first, and the schedules of the scheme hung upon the notation. Our previous remarks must have dispelled that idea ; but it is true that the choice between one of two classification schemes is often made by the librarian upon the question of the relative simplicity of the notation in the two schemes. Notation, however, is really a subsidiary part of classification itself, but it is sufficiently important to merit careful attention.

A notation, then, is a shorthand sign, and it may be of arbitrary characters Δ \times and so forth, as in Smith's scheme (1882), or of figures, or of letters,

or of a mixture of any or all of these signs. In fact, a notation may be any sign that can be made to represent words.

47. A notation which consists entirely of one kind of symbol, say of letters or of figures, is called a pure notation ; one that consists of two or more kinds of symbol is a mixed notation. It will be seen that the Decimal classification has a pure notation—one entirely of figures ; that the Expansive is practically pure, being, except in the case of the Local List numbers, entirely of letters ; and that the Subject classification has a mixed notation composed of letters and figures. Theoretically it may be assumed that a perfect notation would be pure, as the sequence of similar symbols is more easily apprehended than one of dissimilar symbols. Again, much controversy has existed concerning the relative advantages of numbers and figures ; the advocates of the Decimal system asserting that a sequence of numbers is more easily followed than a sequence of letters ; while the advocates of the Expansive urge the same virtue on behalf of their scheme.¹

48. The conditions that a good classification notation must fulfil are these :

- (1) It must be simple.
- (2) It must be brief.
- (3) It must be flexible.

We shall now define these criteria. (1) Simplicity, as will already have been gathered, consists in the

¹ The discussion of T. A. Aldred's paper on " The Expansive Classification " (*L. A. Record*, vol. vii., pp. 196-201) may usefully be read in this connection.

ease with which anyone can understand the symbols used. A collection of arbitrary signs, $\Delta \times =$, etc., is not easily carried in the mind, or not as easily as a collection of more commonly known symbols. Experience has proved that the simplest, and therefore the best, notations are those composed of figures, or letters, or combinations of both. (2) The simplicity of the notation is clearly connected with, and to some extent dependent upon, its brevity. A "shorthand sign" is valuable in proportion to the shortness of the time it takes in writing or in reading. A notation of three figures is more easily remembered than one of six, and still more than one of ten. Similarly, AGF is more easily followed than ARTZLY, or H10 than H145Z23. Consequently, the designers of classification schemes have aimed at producing the greatest possible number of *class-marks* with the fewest possible symbols. A recent well-known advertisement has the following comparison. The book to be marked was *The Bibliography of the Prayer Books of the Unitarian Chapel at Islington*, and the resulting symbols were :

Subject classification K740.685 U916.1.

Expansive classification ZWCIUNCU.45 LO Islington.

Decimal classification 016.2641288421 Islington.

(Brussels Expansion) 016:264.08(42.1 Islington)—06.

We advise great care in forming a conclusion upon this point, because a close classification must have more symbols, because it has more divisions, than one less close ; and the reduction in the number of symbols sometimes means an unwarranted loss of minuteness. And, although we have just said that

a brief notation is better than a longer one, it should not be thoughtlessly said that eight figures are more difficult to remember than six letters, or five figures than two letters and two figures ; or vice versa in each case. On this, however, the student should form his own conclusions.

49. (3) Of much more importance is the flexibility of the notation ; and in describing this it will be well to explain how a notation is built up. Given a schedule of topics, the classifier applies a certain symbol to each main heading, which is expanded in the divisions, further expanded in the subdivisions and still further in the sections, and so on *ad infinitum*. For example, Dewey divides Botany, which is a main division, into ten subdivisions (this is not strictly accurate, but sufficiently so for our present contention). The main division he marks 580, and then gives a figure to each of the subdivisions, thus :

580	Botany.
581	Physiologic and structural.
582	Phanerogamia.
583	Dicotyledonæ.
584	Monocotyledonæ.
585	Gymnospermæ.
586	Cryptogamia.
587	Pteridophyta.
588	Bryophyta.
589	Thallophyta.

Each of these ten subdivisions is again divisible into ten sections, which are marked by an additional digit ; as :

583	Dicotyledonæ.
583·1	Polypetalæ.
583·2	Geraniales.
583·3	Rosales.
583·4	Myrtales.

and so on. And these may again be divided by another ten, as :

583·4	Myrtaleses.
583·41	Rhizophoræ.
583·42	Myrtaceæ.
583·43	Melastomaceæ.

and in this way the division may be carried as far as the subject demands. In a somewhat similar manner the Expansive classification starts with an alphabetic base ; as :

A	General Works.
B	Philosophy.
Br	Religion.
Cc	Christianity.
D	Ecclesiastical History.
E	Biography.
F	History.
G	Geography, Travels.
H	Social Sciences.

and so on, and each of these is divisible by adding another letter ; as :

HB	Statistics.
HC	Economics.

etc. ; and any subdivision may be redivided by another letter ; as :

VT	Theatre.
VU	History of the theatre.
VUL	Acting.
VUP	Private theatricals.

etc. From these brief examples from two classification systems we may note in passing the obvious fact that while the addition of another *figure* in the Decimal scheme gives *ten* new places, the addition in the Expansive scheme of another *letter* gives *twenty-six* new places, owing to the fact that the *alphabetical base* is larger than the *decimal base*. Hence in three symbols Dewey can supply 1000 places, while in the same number Cutter supplies 17,576. It will be found on examination, however, that there are actually not more main classes in the Expansive than in the Decimal scheme; there are really only ten in each; but Cutter *treats* as main classes subjects which are divisions in the Decimal scheme, in order to employ the whole alphabet. We now return to the statement of our rule that a notation must be flexible. It is evident that, although theoretically the large divisions of knowledge may be thought to be settled, knowledge may change in its details; or, to express it another way, the genus may remain constant, but the species may in course of time vary. New subjects may be discovered, as only a few years ago the radio-active element radium.¹ Hence we must, as I have before demonstrated, find a place for changed or new topics in our schedules, and, as a corollary,

¹ Einstein's theory of relativity may have unexpected results on the sub-divisions of philosophy, physics, geometry, etc.; but it is too early yet to prophecy.

in our notation. Bearing in mind what I have said about the method of notation division above, we can, when a new topic appears, find the head in the classification most nearly related to it, and there make a place, in the Decimal scheme by adding a figure, in the Expansive by adding a letter, and in the Subject by very similar methods, which will be described more fully when we deal with the individual schemes.

50. A further advantage in a notation is its mnemonic character, or the use of symbols in such manner that they have a more or less constant meaning when applied anywhere in the scheme. As we saw in section 39, the form division numbers are constant, the same wherever they are applied, and once learned much time is saved in using them. Dewey has several other examples of this, which may be studied in full on page 16 of *The Decimal Classification*. There it will be seen that the figure for India always contains the number 4, Egypt 2, England 2, Germany 3, France 4, and so on. The value of these mnemonics need not be exaggerated.

51. The notations of modern schemes of classification permit of various manipulations, most of which are mnemonic, to denote points of view and relations of topics. I do not propose to do more than indicate these as they can be studied best in the schemes themselves. The most valuable is the method of *geographical* division, which occurs in nearly every scheme. In Dewey it is performed by adding the number for the country to the number of the subject. We frequently meet with the direction "divided

like 930-999," and an examination of the table shows that these figures stand for the history of particular countries—the 9 representing "history"; the remainder of the number the country. Thus 942 is the history of England, 943 the history of Germany, and so on. In subdividing a topic geographically we ignore the history figure 9, and add for England 42, for Germany 43, and so on. Examples :

550	Geology.
554·2	Geology of England.
607	Schools of Technology.
607·42	Schools of Technology in England.
607·43	Schools of Technology in Germany.
282	Roman Catholic Church.
282·45	Roman Catholic Church in Italy.

and so on. The Expansive classification secures a similar result by an elaborate Local List, consisting of numbers, having, as in Dewey, an invariable geographical meaning, which are added to the subject numbers. Similarly, in the Subject classification the local numbers may be added to any subject number in the scheme to make geographical subdivisions.

52. Perhaps the most elaborate series of mnemonic signs auxiliary to notation are those designed as common subdivisions for the elaborate expansion of Dewey by the Institut Internationale de Bibliographie of Brussels. These are known as *relation marks*. (I have translated the following from the first fascicule of the *Classification Decimale*, published by the Institut. Those who read French are recommended to obtain this fascicule.)

“ The auxiliary tables are as follows. They are each indicated by conventional bibliographical signs :

I.	Subdivisions of Form and General Works	(0)
II.	Subdivisions of Place	(2 to 9)
III.	Subdivisions of Language	=2-9
IV.	Subdivisions of Time	“ . . . ”
V.	Subdivisions of Points of View . . . . .	. . . 00
VI.	Subdivisions of relations	:
VII.	Subdivisions of Proper Names	A-Z

The signs of combination which enter into the formation of the number are designed to distinguish clearly the different parts of the number, to prevent confusion between the respective figures, and to make possible the indefinite development by direct decimal division of the numbers of the classification with which they combine.

The combining signs and the letters which characterise the common subdivisions form, with the figures, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, a single series of classification symbols which themselves follow the subjoined order of succession :

(), “ ”, =, :, -, A-Z, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.

The common subdivisions enumerated in the auxiliary tables may be combined, term by term, with the divisions of the principal table. Take these subdivisions :

(05)	Reviews of
(44)	France
=3	In the German Language
“ 17 ”	Eighteenth century.

By combination with the numbers of the heads of the principal tables we shall obtain :

- 53 (05) Reviews of Physics.
 385 (44) Railways in France.
 220·5=3 Versions of the Bible in German.
 338·8 " 17 " Trusts in the eighteenth century.

and so on." ¹

53. The above are to express standpoints, forms, relations, and points of view. Further auxiliaries have been designed to individualise authors and even books. The principal of these and the most elaborate are the Cutter Author Marks. These are fully explained at the end of Cutter's *Expansive Classification: First Six Schemes*, and very full tables of the marks have been worked out by Sanborn and published by the Library Bureau. They are alphabeting tables, consisting of the initial letter or letters of the author's name (or, in the case of anonymous books, of the first word not an article or preposition of the title ; or, in biography, of the surname of the biographee) followed by a decimal number. A single letter is used for names or words commencing with all letters except S and vowels, for which two are used, and the combination Sc, for which three are used. The method of application is simple. The books "are kept alphabeted by authors by marking them with the initial of the author's family name, followed by one or more decimal figures assigned according to a table so constructed that the names whose initials are

¹ The student may pursue the study of these tables further in the admirable paper, "Dewey Expanded," by H. V. Hopwood (*Library Association Record*, June, 1907).

followed by some of the *first* letters of the alphabet have the *first* numbers, and those in which the initials are followed by later letters have later numbers." E.g. :

Gardiner G16, Gilman G42, Graham G76, etc.

Saint Sa25, Swain, Sw92, etc.

Abbott Ab26, Aldridge Al38, etc.

Schneider Sch43, Schrift Sch83, etc.

This is added to the classification number after a small space ; e.g. :

F45 G16. Gardiner's *History of England*.

The marks may be applied to the notation of any scheme.

54. An English author mark in use in some libraries is that devised in 1900 by Mr. L. Stanley Jast,¹ as a simple alternative to the Cutter mark. The number consists of the first *two* letters of the author's names, and names commencing with the same two letters are distinguished by the figures 1, 2, 3, etc. The alphabetering is not strict ; authors are numbered in the order of their arrival ; thus, if Johnson and Joyner have already been marked JO and JO1 respectively, and Jones is added, he is marked JO2, and if Jobson is then added he is JO3. In Fiction and English Literature the first three letters of the name are used with the same subdivisions. Individual works of an author are marked by the addition of the initial letter of the title after a point, and other titles commencing

¹ Jast, L. S., " A New Book Number " (*Library World*, vol. iii., pp. 120-3, 150-2).

with the same letter are marked 1, 2, 3, etc. ; thus, Shakespeare's *Macbeth* is SHA.M, his *Merchant of Venice* SHA.M1 and his *Midsummer Night's Dream* SHA.M2. Collected editions of an author are marked simply by the three letters, but different editions or duplicates are marked by a lower-case letter, a, b, c, etc. ; thus SHAA is a second copy of Shakespeare's *Complete Works*, and the principle may be extended to duplicates of individual works ; thus SHA.Ma may indicate a second copy of *Macbeth* and SHA.M1a a second copy of *The Merchant of Venice*. Individual biographies are marked by the first three letters of the biographee with the first letter of the author's name as the work mark ; thus, Morley's *Life of Gladstone* is marked GLA.M. If strict alphabetical order is desired—as is usually the case—the numbers added to the initials may be treated as decimals ; thus :

Harder	HAR2
Hardman	HAR25
Hardy, I. D.	HAR3
Hardy, T.	HAR35

55. An approximate alphabetical arrangement may be secured by the use of the Merrill numbers, which are limited to 100 places. A sample is as follows :

01	A
02	Agre
03	Als
04	Ap
06	B
07	Ban

08	Bax
10	Bix
11	Bou
12	Brim
13	Bum
14	C
15	Carr
	etc.

This number can be added to any subject number, but in applying them to the Decimal system they should be separated from the subject number by curves or a dash in order that they may not be confused with it. An anglicised version of this number, by Mr. James D. Stewart, was published in *The Library Association Record*, vol. 9, pages 244-5, 1907.

When the whole question of author marks has been considered, I think something may be said for using the first three letters of the author's name, without any further refinements; at least where the books are not charged by class + book marks.

Various other interesting and suggestive auxiliaries of notation may be found in the respective introductions to the Decimal and Subject classifications.

56. The chronological arrangement of subjects may be secured by the use of the Biscoe Time numbers, which provide for arranging books by the years from 1000 B.C. to A.D. 2000, as follows :

A	BC
B	AD1-999
C	1000-1499
D	1500-1599

E	1600-1699
F	1700-1799
G	1800-1809
H	1810-1819

and so on to Z, which represents 1900-1999. It will be seen that the numbers A-C represent long historical periods, in which it is assumed that few books were published, D-F centuries, and G-Z periods of ten years in the two centuries nearest to us—the nineteenth and twentieth. To indicate the exact date of a book we take the letter nearest to the date, and omit that part of the date which is indicated by the letter and add the remaining figures of the date ; thus :

A	333	= a book published B.C. 333.
B	450	= one published in A.D. 450.
C	273	= one published in 1273.
D	12	= one published in 1512.
H	5	= one published in 1815.

When more than one book in the same class calls for the same number a lower-case letter is added ; thus :

Bentley.	Botany 1856 is 580L6.
Hooker.	Botany 1856 is 580L6a.

CRITERIA OF A PRACTICAL BOOK CLASSIFICATION

57. It is perhaps permissible, as a conclusion to our survey of purely theoretical classification, to plagiarise Richardson's criteria. These have been assimilated to some extent in the foregoing chapters, but there are important and suggestive differences to which it is advisable to pay special regard :

I. It should follow as nearly as possible the order of things. A properly classified library is perhaps the nearest thing there is to a microcosm. A human mind which knew all things might be more perfect in this respect, but in reality no one can or does keep the whole of things in mind as a library does. It must therefore follow the order of complexity or of history, or, if you please, of evolution.

II. It should be carried out in minute detail.

III. It should be provided with a notation which will allow for indefinite subdivision, using mixed symbols, but with a predominating decimal base.

IV. It should be provided with a detailed and specific index.

V. The value of such a system is increased in direct ratio to the generalness of its use.—*Richardson. Classification.*

58. READINGS.

RICHARDSON. *Classification*, Lecture II. and the Appendix, as far as they deal with notation.

BROWN. *Subject Classification*. The Introduction, as far as it bears on notation.

CUTTER. *Expansive Classification, Part I.*, Appendix, pages 139 to end.

DEWEY. *Decimal Classification*, Introduction, pages 9-20 ; 26 to end.

SAYERS. *Canons of Classification*, chapter vii.

PURNELL. "The Development of Notation in Classification." In *The Library Assistant*, vol. viii., pages 25-33, 44-50.

INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE. *Classification Bibliographie Décimale*, Facsimile I.

And also the literature mentioned in the chapter.

59. QUESTIONS.

(1) Comment on the criteria of a good notation.

(2) A notation must be flexible. Explain.

(3) The decimal base of notation is said to be narrower than the alphabetical. Is it? Prove your answer, and construct two brief classification schemes for arranging "Photographs of Churches and Ecclesiastical Buildings," one having a decimal, the other an alphabetical base for its notation.

(4) Give three examples of books classified by Dewey, and individualised by Cutter Author Marks. Explain the process.

(5) What are the common subdivisions of the Brussels expansion of Dewey? Explain them.

(6) Why is a pure notation probably better than a mixed? Criticise that of the Subject Classification.

PART II. HISTORICAL AND PRACTICAL

CHAPTER VII

PRELIMINARY ON STUDENTS' READING

60. WE have now covered briefly the principles governing the construction of classificatory schemes. It will be our business in the remaining chapters to see, first, how those principles have been applied by the constructors of schemes for the arrangement of books ; second, to become familiar with the three or four predominating modern schemes ; and third and finally, to consider the rules governing the practical application of such schemes of classification to books and to catalogues, and to discuss the various accessories, mechanical and other, necessary to make clear the features of the scheme adopted to the users of the libraries or catalogues.

61. On the historical side I shall attempt very little detail. Schemes for the classification of knowledge, being of small practical value and requiring more time than can be devoted to their consideration, I shall ignore henceforth. Of course I have referred to them again and again in the chapters on theory, and have demanded a knowledge of the main features of the systems of Porphyry, of Linæus, and the Natural System of Botany (and

so much, at least, should be familiar to the student) ; but as every organised science has its classification and the principles of classification design do not vary, the student is now sufficiently acquainted with such systems. With this necessary narrowing of the field I still can hope only to be suggestive, not exhaustive. Much the student must work out personally, but I shall endeavour to give here all necessary indications for his study.

62. The essential textbook is Brown's *Library Classification and Cataloguing*, and the most complete and useful work, but unfortunately inaccessible to many as it has long been out of print, is Edward Edwards's chapter on "Classificatory Systems," in vol. 2 of his *Memoirs of Libraries*. Richardson's *Classification*, although it lacks the detail of Edwards, has for its appendix the best bibliography of classification. Students are fortunate who have access to these, and should use them where they have ; but I shall endeavour to reduce the difficulties of those who have not. In the historical portion, Brown's *Guide to Librarianship* will be found useful—the chapter by Mr. Jast on Classification. The literature mentioned in the brief bibliography that follows Mr. Jast's notes is rather too extensive ; paragraph 2 is useful, 3 and 4 may now be ignored ; the "General," under 5, is not essential ; but the remaining sections are worthy of careful attention. In his valuable notes Mr. Jast gives a list of bibliographical schemes in chronological order (250 B.C.—A.D. 1905) ; this seems appalling at first sight, but must not be thought

upon over seriously. It is undoubtedly useful to know something of every scheme from that of Callimachus to that of Brown, but it is essential to know some only of these. I shall endeavour therefore to explain the systems of Bacon, Bouillaud, Brunet, the British Museum, Edwards, Dewey, Cutter, the Expanded Dewey of the Brussels Institute, and the Subject scheme of Brown. Each of these is in its way a landmark in the history of classification. Outlines of most of them will be found in Brown's *Library Classification*. His description of Bacon's—a most important scheme—is inadequate; this should be read up in Bacon's *Advancement of Learning*. Before chapter viii is read the student would do well to read book 2 of *The Advancement of Learning*, which explains minutely the scheme of classification propounded by the great philosopher. The language and phraseology are necessarily somewhat archaic, but they improve upon acquaintance, and the book is both an excellent conspectus of method and an admirable piece of dialectics. Any English edition will do; but that edited by W. A. Wright, and published at the Clarendon Press, Oxford, is equipped with useful notes and a glossary, as well as a schedule of the classification, and is therefore to be preferred. Brunet may be studied by students who read French in Rouveyre's *Connaissances Necessaires à un Bibliophile*, vol. 9, pages 25–37. A somewhat inadequate account by the late Edward McKnight appears in *The Library Association Record*, vol. 6, pages 416–21. The Decimal and Subject schemes must be read in the schemes themselves;

access to these is essential. The Expansive scheme must be known in outline ; its notation and application thoroughly understood, and an acquaintance with the tables themselves is desirable. These three schemes, and the Library of Congress scheme, form the main subject-matter of *Canons of Classification*, which it is hoped the student will read in conjunction with this book.

63. On the practical application of classification the essay on "Library Classification" contributed by Mr. Jast to Greenwood's *British Library Year Book*, 1900-1, should be read ; Savage's "Classification Guides and Indexes" in *The Library World*, vol. 8, 1905-6, and my own *Grammar of Classification* will be found useful ; and a necessary complement to these is to be found in chapters XV.-XVII. of Brown's *Manual of Library Economy*, third edition, 1920, and his *Library Classification*, chapter V.

CHAPTER VIII

HISTORICAL. EARLY SCHEMES. BACON. BRUNET.
BRITISH MUSEUM. EDWARD EDWARDS

64. THE classification of books is practically as old as libraries ; and we may assume that the earliest catalogues were classified. We know, for example, that in the library of Assur-bani-pal, King of Assyria, there was a catalogue inscribed on twenty-five clay tablets ; fourteen of which set forth the works on the knowledge of the earth and eleven on the knowledge of the heavens. We have other evidence that in these early libraries the books themselves were classified, the poetry being on one wall, the astronomy on another, and so forth. The great libraries of the Ptolemies at Alexandria, the wonder of the ancient world, had for their first librarian known to us by name the famous Callimachus, whose simple but comprehensive classification ran :

1. Poets.
2. Lawmakers.
3. Philosophers.
4. Historians.
5. Rhetoricians (Orators).
6. Miscellaneous writers.

It seems that the earliest librarian recognised the need of a generalia class. One must remember that the connotation of the terms used in this interesting

early scheme has greatly altered. Philosophers would cover science and the arts, for example ; a breadth of extension almost equalling that of the scheme of a modern librarian who informed the writer that he had a class connotating Science, Art *and* Literature ! I cannot pause, even if it were desirable, to describe the shelf and catalogue arrangements of the Greek and Roman libraries ; suffice it to say that classification existed, and that in the matter of arrangement as well as in the liberality of their administration we have to admit regretfully that the libraries of old were often in advance of their modern prototypes.

65. Again, the libraries of the Middle Ages were broadly classified. Being in the majority of cases monastic foundations, the first characteristic of arrangement was orthodoxy—which, of course, implies the exclusion of its antithesis, heterodoxy. The sheep were separated from the goats. Without commenting upon these, I pass rapidly to what is called—erroneously, as we have already seen—the first bibliographical scheme, that of Conrad Gesner, 1548. He divides the field of knowledge into two parts : Præparantes and Substantiales, and the complete schedules may be shown in brief as follows :

Præparantes.

Necessaria.

Sermocinales.

Grammar, philology, dialectics, rhetoric, poetry.

Mathematicas.

Arithmetic, geometry, optics, etc. ; music, astronomy, astrology.

Ornantes.

Divination and magic, geography, history, useful and mechanic arts.

Substantiales.

Natural philosophy, metaphysics, theology, moral philosophy, economics, political philosophy, jurisprudence, medicine, Christian theology.

This interesting scheme is conditioned by the state of written knowledge at the time of its appearance. There is an attempt at the co-ordination of topics, but only in a general way, and in Substantiales we have widely different classes side by side, simply because in their Latin terminology they were "philosophies" "Poetry," as we shall see in the Baconian classification as well, connotes works of imagination in prose and verse; hence fiction is a division of poetry. It was by an interesting anticipation of Brown's derivation of Music from its root-science Acoustics that Gesner regarded it as a mathematical science and made it modulate from Physics (geometry, optics, etc.).

7. 66. The system of Francis Bacon, 1623, is one of the most important in the history of our subject. Right down to modern times nearly every scheme has been an inversion, perversion or adjustment of this. It is the work of a powerfully analytical and at the same time synthetic mind; it is, to digress a little, the work of one who wrote the rather antique and insufficient but beautiful definition of libraries: "the shrines where all the relics of the ancient saints, full of true virtue, and that without delusion or imposture, are preserved and reposed." The system

arranged in the form of a modern schedule, is as follows :

BACON'S CLASSIFICATION OF HUMAN LEARNING
(i.e. as opposed to Divine Learning or Theology).

HISTORY (MEMORY).

NATURAL HISTORY.

History of generations.

(Heavenly bodies, earth and sea, " masses " or " greater colleges "—i.e. the four elements, " species " or " lesser colleges "—i.e. zoology and botany).

History of pretergenerations.

" Irregulars " of nature, such as monsters, witchcraft, and marvels.

History of arts (nature wrought or mechanical).

CIVIL HISTORY.

Ecclesiastical.

Special.

History of prophecy.

Divine judgments or Providence.

Civil history (proper).

Memorials (preparatory history).

Commentaries.

(" C. set down a bare continuance and tissue of actions and events, without causes and pretexts . . . ")

Registers.

(Here come the public acts, edicts, etc.).

Antiquities.

Perfect history.

Chronicles.

Universal.

Annals.

Journals.

Particular.

Annals.

Journals.

Perfect History, *continued*.

Lives.

Relations.

Cosmography.

(Geography, navigation, climate, geography and astronomy combined).

Learning and the arts.

Appendices to history.

Orations.

Letters.

Apophthegms.

POESY (IMAGINATION).

NARRATIVE.

DRAMATIC.

PARABOLICAL.

(i.e. fables, allegory).

PHILOSOPHY (REASON).

DIVINE (natural theology).

NATURAL.

Speculative.

Primary philosophy.

Physic.

(Includes astronomy and astrology).

First principles of things.

Fabric of things, or the world.

Variety of things.

Concrete.

(Divided like natural history).

Abstract.

Configurations of matter.

(Rather *states* of matter).

Motions.

(Attraction and repulsion, etc.).

Speculative, *continued*.

Metaphysic.

Operative.

Mechanic.

(Applied physic).

Magic.

(Applied metaphysic).

Mathematic.

Pure.

Mixed.

HUMAN.

Philosophy of humanity.

(Man as an individual).

Nature or state of man.

(Includes miseries and prerogatives of his state and *mind and body*).

Body.

Medicine.

Cosmetic.

(Personal hygiene).

Athletic.

Voluptuary (sensual arts).

Painting.

Music.

Other arts of pleasure.

Soul.

Breath of life (rational soul).

Sensible or produced soul.

Motion.

Sense.

Substance and faculties.

Use and objects of the faculties.

Logic.

Art of discovering.

Art of judging.

Art of retaining (memory).

Use and Objects of the faculties, *continued.*

Logic, *continued.*

Art of transmitting.

(Here come grammar, speech, writing, rhetoric).

Ethic.

Philosophy, civil.

(Man in society).

Conversation.

(Includes etiquette and manners).

Negotiation.

(Conduct of business, personal fortune and advancement).

Empire or state government.

(Includes economics and law).

In *The Advancement of Learning* Bacon has expounded the principles of his system at length, explaining most of the terms which time has rendered unfamiliar or of which the meaning has changed. I shall therefore content myself with a few brief remarks on the scheme and at the same time direct the student to the work mentioned. Its three main classes are I. History, II. Poetry, III. Philosophy, the characteristic chosen as the basis of the arrangement being the mental faculties; i.e. Memory, Imagination, and Reason. Memory translated into literature necessarily becomes all forms of History; but the term has a wider connotation than now; it includes Natural and Civil History, and the latter includes not only Ecclesiastical History but Literary History as well. Natural History has a curious extension over the sciences now denominated Astronomy, Geology, and Physical Geography, and Biology, with their divisions; over the irregu-

larities of nature ; and also, it should specially be noted, over the Arts now called Useful Arts, Technology, etc. Civil History and its subdivisions seem clear. Note, however, that Biography (Lives) is included in it, as in Dewey and other modern schemes ; as also personal memoirs of particular events (Relations) ; and that Oratory, Letters, and Aphorisms, Proverbs and Maxims (Apophthegms) are considered as being related to History. Poesy embraces all works of imagination irrespective of form ; that is to say, whether in prose or verse, narrative, dramatic, or lyric. Note carefully the distinction between narrative poetry and poetry in parable form. Philosophy is an important class. Its divisions are Divine, Natural, and Human Philosophy. Natural Philosophy is Speculative, Operative, and Mathematical, and has the old connotation of the term ; that is to say, it takes in physics and metaphysics, applied physics and metaphysics, and pure and mixed mathematics. Human philosophy has two main aspects, physical (Body) and mental (Soul). Soul as used here may be said to mean "the mind" rather than the "eternal spirit" of the theologians. Closely cognate to human philosophy is Civil Philosophy, which, being interpreted partly by a modern term, is Sociology.

Such a scheme is naturally deficient from a modern bibliographical standpoint. The arranging of great main classes as subdivisions of three forms of the mental faculties would result, if now applied to books, in unwieldy sections, especially when we remember that only the main schedule of the scheme

is given here and the subdivisions would need to be increased greatly for its practical application. One can easily see this by considering how the simplest main division, Poetry, would have to be expanded before its use would be possible to-day.

67. In the system of Bouillaud (*circa* 1678) we have the first application of a really sound bibliographical scheme to the catalogues of booksellers. Successively modified by Martin (1740), Debure (1768), and Brunet (1842), it became known as the French system, or the "~~system of the Paris booksellers.~~" Here we see the three classes proposed by Bacon have been superseded by five; I. Theology; II. Jurisprudence; III. Sciences and Arts; IV. Polite Literature; V. History. These classes, worked out in detail by J. C. Brunet, with the substitution of the term *Belles-Lettres* for Polite Literature, are as follows:

J. C. BRUNET'S CLASSIFICATION

(French System, 1810.)

Outline.

(A) Theology.

- I. Holy scriptures.
- II. Liturgy.
- III. Councils.
- IV. The Fathers.
- V. Theologians.
(Theology, scholastic, dogmatic, moral, catechetical, homiletic, mystical, polemical, and Christian churches and sects other than Roman.)
- VI. Singular opinions.
- VII. Judaism.
- VIII. Oriental religions.

(A) Theology, *continued*.

- IX. Appendix.
(Deists and unbelievers.)

(B) Jurisprudence.

- (a) Introduction.
(History, study, philosophy, dictionaries,
general treaties.)
 - I. National and international.
 - II. Political.
 - III. Civil and criminal.
 - IV. Ecclesiastical or canon law.

(C) Sciences and arts.

- I. Philosophical sciences.
- II. Physical and chemical sciences.
- III. Natural sciences.
- IV. Medical sciences.
- V. Mathematical sciences.
- VI. Appendix to the sciences.
(Occult philosophy, alchemy and astro-
logy.)
- VII. Arts.
- VIII. Mechanical arts and crafts.
- IX. Gymnastics.
- X. Games, sport.

(D) Belles-Lettres.

- I. Linguistics.
- II. Rhetoric.
- III. Poetry.
- IV. Poetry, dramatic.
- V. Prose fiction.
- VI. Philology.
- VII. Letters.
- VIII. Polygraphs.
- IX. Collections and extracts.

(E) History.

- I. Historical prolegomena.
(Philosophy, study, historical atlases, dictionaries, geography and travel, chronology.)
- II. Universal History.
- III. History of religions and superstitions.
- IV. Ancient History.
- V. Modern History.
- VI. Historical paralipomena.
(Chivalry, public ceremonies, archæology, literary history, biography, bibliography.)
- VII. Miscellanies, encyclopædias.
- VIII. Journals, literary, scientific, and political.

We see here a new order more closely adjusted to the needs of the bibliographer. Bacon carefully excludes the classification of Theology other than Natural Theology from his scheme—his is one of Human, and not of Divine, Learning. The scheme of Brunet is for written matter as a whole. We have no evidence that Bacon ever intended a bibliographical application of his scheme, and it would be better to regard it as an ideal chart of learning rather than as a practical classification. Brunet is purely bibliographical. His system commences, as most modern schemes have done, with Theology. Curiously enough it seems not to provide a place for Sociology, except in regard to man as a subject to human law in Jurisprudence. It is a purely artificial scheme; the order is not natural, or evolutional, but is arbitrary. This is clear in the division Sciences and Arts, which mixes up the pure and applied sciences. In Belles-Lettres, answering here to our modern Language and Liter-

ature, we have Linguistics widely separated from Philology; in History we have Religions and Superstitions, which would seem to be more clearly allied to Theology.

68. I shall refrain from dealing with the successive schemes proposed from the time of Brunet onwards; because, though interesting, they present few outstanding philosophical or practical features, and they are summarised briefly in Brown's *Library Classification*. The scheme of the British Museum, 1836-8, which is sufficiently detailed for our purpose on page 33 of that work, is worthy of consideration as the system upon which our largest library is arranged. It will be noted that the scheme reflects the old connotations of many of the terms used as names of the main classes; and in many respects from our modern standpoint it contains a number of examples of what to avoid in classification. It commences, as Dr. Garnett affirmed that all schemes should commence—not quite convincingly as I think—with Theology, and in this class no places are allocated to religions other than Christian, except I82, Scriptures of Non-Christian religions. This may be overcome by mixing Christian and Non-Christian theologies indiscriminately, but that method is radically unsound. Jurisprudence is clear enough in its arrangement, but it is separated, as in the French scheme, by a long interval from the cognate philosophy of Economics, which appears under Philosophy. Natural History and Medicine is a logically sound class, but the sandwiching of Horticulture (a possible fine art) and Agriculture (a

distinct branch of useful art) between Botany and Mineralogy, although it can be defended theoretically, is a doubtful arrangement when regarded from the practical point of view. Archæology and the Arts form an unwieldy class involving several differences from modern systems. Archæology is considered nowadays by many classifiers to be part of the raw material of History, and Postage Stamps to have some close relation to Currency, and, consequently, to Economics. It is noticeable that Music is a *transitive* or "carrying-over" class between the Fine Arts (Sculpture) and the Recreative Arts (Field Sports), as it partakes of the nature of both fine and recreative art. A similar arrangement is observable in Cutter. The appearance of Useful Arts as a division of this class is another example of theory triumphing over practical considerations; the arrangement is absurdly inadequate, seeing that this class embraces nearly all the trades and handicrafts of man. Philosophy has largely the Baconian connotation, and embraces Civil Philosophy (Economics, Education, Sociology) Mental Philosophy (Philosophy, Logic, Occult Science), Natural Philosophy (Arithmetic, Mechanics, etc.), and probably Chemistry and Photography are regarded as branches of Natural Philosophy. The arrangement is antiquated, and could not be tolerated in any more modern library; nor, in all probability, would it survive at the British Museum if the task of re-classifying its millions of books were not so gigantic. Belles-Lettres is the comprehensive name for Literature and the Book Arts

—the great form classes of the scheme. It includes one trade, Typography; but otherwise manages to embrace all the divisions of pure literature and to fulfil the functions of a generalia class. As we have indicated, this most interesting scheme is a survival on large lines of the classification theories of Bacon and Brunet; it reflects the older scholarship. From the point of view of the librarian of a popular library it is pedantic and involved; it recognises an arbitrary intellectual division of the field of knowledge and has small regard for the natural affinities of the various parts of knowledge. It has been declared to be adequate, however, by the librarians of the British Museum, and that fact introduces a reflection of some consequence in classification.

69. "It does not matter in a bibliographical scheme where a topic is located so long as the place is constant, the arrangement there consistent, and so long as the classification is properly indexed." This is an axiom of classification having wide currency, and, if the sole purpose of classification were merely to make the finding of books on the shelves fairly easy, an incontestable one. But it transgresses nearly every canon of classification, and has a fatal defect. The function of classification is to place a topic in its sequence in the order of knowledge in such a manner that books leading up to the topic are on the left of those dealing with it, and books leading away from the topic are on the right of them. Admit this—and it is only wise to expect a classification to bring near to a topic all its cognates and correlatives—and the axiom propounded above

is susceptible to criticism. However, the axiom propounds a practical truth, and the student will be wise to think it out. This statement, then, is held to be the practical reply to those who find the sequence of the British Museum scheme theoretically unsound.

70. A rapid glance at the scheme of Edward Edwards, 1859, which is set out on page 40 of Brown's *Library Classification*, must complete our survey of the prominent historical schemes of book classification. Here the order is adjusted to the requirements of public libraries. I shall leave the student to apply to this scheme the methods of criticism we have used in section 49. The omission will be noticed here, as in the British Museum scheme, of any provision for Non-Christian religions (perhaps Edwards thought public libraries should be immaculately orthodox); that History is worked out with some fullness, but that only one division is given to Modern Africa and Asia, and that biographies are placed with the subjects they illustrate throughout the classification; that Politics and Commerce are given their proper emphasis and not made divisions of Philosophy; and that the Sciences and Arts make a somewhat unwieldy class, but one much more reasonably arranged than that of the British Museum.

It will be well to pursue a similar method of criticism with each scheme to be found in chapter 3 of the textbook we are using; but it is essential that the schemes I have mentioned should be so treated.

71. READINGS.—I am conscious that the reader is expected to cover a great deal of ground in the foregoing chapter, but space does not admit of more leisurely detail. The chapter contains what are probably the best schedules available in English of Bacon and Brunet, and reference may, so far as these schemes are concerned, be confined to these schedules, except that we hope the student will read Bacon's own account in *The Advancement of Learning*. Other readings :

BROWN. *Library Classification*, chapters ii. and iii.

RICHARDSON. *Classification* (the bibliography deserves the closest study).

ROUYEYRE. *Connaissances Necessaires à un Bibliophile*, vol. ix.

EDWARDS. *Memoirs of Libraries*, vol. ii., pages 761–831.

FLINT. *History of the Classifications of the Sciences*.

72. QUESTIONS.

(1) Write a brief account of the Baconian Classification, explaining its purpose. How does it differ from modern schemes ?

(2) Apply a pure alphabetic notation to the Bacon scheme. Explain its use.

(3) Apply a decimal notation to Brunet's scheme ; explain the scheme, and the use of your notation.

(4) What are the virtues and defects of the British Museum scheme ?

(5) Criticise the axiom that it does not matter where in a scheme a topic appears so long as it is indexed.

(6) Write a brief essay on Class 300 of Dewey, and contrast it with Class D of Edward Edwards's scheme.

CHAPTER IX

DECIMAL CLASSIFICATION

73. CLASSIFICATION schemes are described as "movable" and "fixed"; or, to use other names to express the same things, "relative" and "rigid." Nearly all modern schemes are of the "movable" or "relative" variety. The fixed or rigid scheme is one that does not permit of the insertion of divisions or even books into its sequence, and is subversive of all the ideas we have expressed in the course of these chapters. Usually in such a scheme the books are originally divided into a number of main classes, are arranged with some regard to subject, and spaces are left for additions; but when these spaces are exhausted additions are put at the end of the class or somewhere else in the library where space can be found. In effect, then, classification and fixed location are practically incompatible, as a proper scheme must allow books to be "moved up" whenever additions are made. The relative system numbers not the shelves, but the books; when a book is added it takes its appropriate class-number, is inserted, and the books following it are moved sufficiently to make room for it. Thus, as long as shelf space remains in the library the books can run in one continuous subject sequence. The methods of arranging books by accession

numbers, irrespective of their subjects—a method which, to the disgrace of librarianship, is still occasionally to be found—or by size, are usually examples of rigid location.

74. By Decimal Classification we mean a scheme which has been adjusted to admit of the application of a decimal notation. In its perfection such a scheme can only admit of ten main classes, as the digits 0 to 9 are the full extent of the base ; but the flexibility of decimal division might readily be applied to schemes which reject this limited base. For example, if we are content with an impure notation, we might use letters for our basic notation and *divide* decimally ; hence, if the ten main classes of Dewey were lettered A to J instead of 0–9, and the present decimal method of division were carried out, it would be possible to combine nearly all the virtues of the Expansive notation with the very distinct merits of the Decimal. But I must not stay to theorise on this point beyond pointing out that the decimal method of division has an enormous flexibility and may be applied in many ways not yet observed by classifiers.

75. It is not strange that classifiers should long ago have recognised the wonderful adaptability of decimal figures to classification, and the superiority of the method to the rigid arithmetical notation. In more than one large library, as Brown suggests, a system of decimal character was introduced ; at the Mitchell Library, Glasgow, for instance ; and we find in 1856 a treatise appearing from the pen of Nathaniel B. Shurtleff, at Boston, U.S.A., entitled

A Decimal System for the Arrangement and Administration of Libraries. This privately printed work describes a scheme in which the library is to be arranged in alcoves, each alcove is to contain ten tiers, and each tier ten shelves. Here we have in essence the outline of the Decimal scheme as we know it to-day. But the notation was hardly the expansible instrument of the present. The books had a fixed place on the shelves; hence $\frac{1}{120}$ would mean the nineteenth book on the bottom shelf of the second tier. Note that the tiers were numbered 1-10 rather than 0-9, an arrangement which lacks the simplicity of the method which has superseded it. What happens when any shelf is full we are not told. An interesting decimal scheme, and of importance owing to the character of the library to which it is applied, is that of the Bodleian Library, 1888, the tables of which are not published in an expanded form, but which admits of very great expansion. The notation begins at 90 and ends at 399, and these numbers are distributed through the main classes as follows:

- 90- 99 Natural, comparative, and heathen religion
and folk lore.
- 100-149 Theology.
- 150-169 Medicine.
- 170-179 Arts and trades.
- 180-199 Natural science.
- 200-209 Travel.
- 210-229 Biography, heraldry and history.
- 230-248 Sociology.
- 250-299 Literature (including bibliography).
- 301-329 Language.
- 340-399 Miscellaneous.

These classes present no theoretical perfection in their order, and it will be noted are more suitable to a large academic library than to a general library of small size. The classes are divided decimally, after the manner of Dewey, and the arrangement of each specific subject is approximately chronological. The following are a few random examples illustrating the intercalation of topics :

257	Writing and illumination : general.
2571	Particular scripts.
25782	Specimens of autographs.
25783	Catalogues of autographs.
25784	Handwriting as an index to character.
25785	Shorthand.
25789	Cypher.
257899	Punctuation.

The most recent general decimal classification is that of Princeton University, 1901, outlined by Richardson. It has an enormous four-figure base divided decimally, and the main classes run as follows :

0000-0999	General Works.
1000-1999	Historical sciences.
2000-2999	Language and literature.
3000-3999	Modern language and literature.
4000-4999	Arts.
5000-5999	Theology.
6000-6999	Philosophy and Education.
7000-7999	Sociology.
8000-8999	Natural sciences.
9000-9999	Technology.

It realises the needs of a collegiate rather than those of a general library ; it has many mnemonic

features, and great flexibility ; but its notation is somewhat lengthy : *The Zend-Avesta ; tr. Darmesteter* 1898, for example, being marked 2429.2898.

76. When, however, we speak of decimal classification, we usually think only of the *Decimal Classification and Relative Index for Libraries, Clippings, Notes, etc.*, by Melvil Dewey, first published in 1876 with twelve pages of tables and an index, and reaching in its latest revisions many hundreds of pages of tables and indexes. This system, which is our principal consideration here, has admitted faults both theoretical and practical, but until quite recently, there has never been so valuable a library tool, so important a work in systematising and co-ordinating the chaos of arrangement which hitherto existed in many libraries. It appeared long before the canons by which we now judge it were formulated, and it may appear to disadvantage in their light ; but we must recognise that this system has a practical utility, a hospitality and a simplicity which had never before been equalled, and probably will never be surpassed. The basis of the scheme, as we showed in section 24, is ten main classes :

- 0 General Works.
- 1 Philosophy.
- 2 Religion.
- 3 Sociology.
- 4 Philology.
- 5 Science.
- 6 Useful Arts.
- 7 Fine and Recreative Arts.
- 8 Literature.
- 9 History.

A few ingenious theorists have imagined that they saw a distinct order in this of evolutionary character, and argue thus : In man's earliest appearance the first difference between him and the animal was mind (which is the fundamental of 1 Philosophy) ; his mind developing, he sought his origin and deduced a Deity (which is fundamental of 2 Religion) ; he then established himself in communities (and man in communities is the matter of 3 Sociology) ; for communal purposes he required and formulated language (4 Philology) ; to protect himself he then gathered what knowledge he might of his environment (5 Science) ; and, as he could not live save by the exercise of industries, he developed these (6 Useful Arts) ; as he progressed to a higher rationality he sought to gratify his finer instincts by the ornamental and beautiful (7 Fine Arts, and 8 Literature, i.e. the fine art of writing) ; and, finally recorded his development (9 History). Candidly, this is weaving cobwebs to confound the ignorant, and perhaps to amuse the enlightened ; but the theory is worth statement, in that it shows what is rapidly becoming the "unpopular" opinion. As a matter of fact, the Decimal outline is almost a replica of the "inverted Baconian" scheme of William T. Harris, 1870, and its peculiar order is simply due to a modern interpretation of Bacon's terms. A glance at the three outlines, side by side, will show the genealogy of the Decimal Scheme :

BACON.	HARRIS.	DEWEY.
<i>History.</i>	<i>Science.</i>	General Works.
Natural.	Philosophy.	Philosophy.
Civil.	Religion.	Religion.
<i>Poesy.</i>	Social and Political Science.	Sociology.
Narrative.	Natural Science	Philology.
Dramatic.	& Useful Arts.	Science.
Parabolic.	<i>Art.</i>	Useful Arts.
<i>Science or Philosophy.</i>	Fine Art.	Fine Arts.
Divine.	Poetry.	Literature.
Natural.	Fiction.	History.
Human.	Literary Miscellany.	Geography.
Theology.	<i>History.</i>	Biography.
	Geography and Travel.	
	Civil History.	
	Biography.	
	<i>Miscellany.</i>	

It will be seen that Harris has merely turned Bacon's order about, modernised his terms, and slightly modified them ; and that Dewey's outline is practically identical with that of Harris.

An examination of the Decimal outline shows us that Sociology (man in communities) is removed from History (the story of man in communities) ; historical sociology is of course the raw material of history. Again Philology (the principles of Language) is removed from Literature (the application of language to the expression of thought). Then, from the entirely practical standpoint, many of the main classes are cumbrous. Fiction is included in Literature ; Biography is merely one division of History, and Geography and Travel is another in the same

class. But before we develop our criticism and suggest adjustments, we must have a clear view of the scheme and what it is meant to achieve. It is scarcely fair to criticise a classification for failing to accomplish purposes for which it was never intended.

77. Ten main classes are the basis of the scheme ; these are noted by the digits 0 to 9. Its first expansion is ten divisions added to each of these classes ; hence 01-99, which gives 100 places by the addition of one figure ; its second by the addition of ten more to each of the 100 places ; hence 010-999, which give 1000 places. The division is then carried on by the addition of figures read decimally, as required ; a decimal point being placed after the third figure to break up the symbol so that it may be read more easily. The extent of this division is unlimited, but as it proceeds in multiples of 10, five figures give 100,000 places and usually meet the requirements of a large library. It is curious to note that when the first arrangement of only 1000 places appeared it was criticised as too elaborate even for a large library. It was intended by the designer to combine, as far as possible, the theoretical order of philosophical classification with distinct practical utility. " Practical utility and economy are the keynotes of the entire system, and no theoretical refinement has been allowed to modify the scheme, if it would detract from its usefulness or add to its cost." Such an ideal limits our criticism, and anticipates the objection some critics have made that knowledge does not naturally, or even con-

veniently, split into ten divisions. However, we have shown that the main classes may claim a sort of general sequence. When we come to examine the tables we are faced with the fact that the last subdivision of any main class, a very specific head as a rule, cannot be said to modulate into the next main class, a criticism which is inevitable in every scheme known to us. And, in fact, we become aware that the Dewey system is in reality a series of special classifications, each having an essential characteristic as the base of its arrangement, and intended within itself to be in its terms exhaustive, mutually exclusive, and so on. An examination of these schedules, especially those of Science, shows that an attempt has been made to approximate to the order laid down by the scientist. It can scarcely be said to be evolutionary, although it has an evolutionary tendency. Such sections as Philosophy, which is arbitrarily and badly arranged, Religion, Sociology, etc., follow no arrangement that can be called historical; in Philosophy cognate heads are separated in a rather bewildering manner. All this criticism, which it is desirable that the student should extend for himself, is, as we have shown, anticipated by Dewey's disclaiming of absolute theoretical perfection, and by his assertion that it matters relatively little where in a scheme a subject is placed, if the scheme is thoroughly indexed. A cumulative relative index of all the schedules is given, in which the main class by which any topic is embraced is marked in a distinctive type.

78. We have already indicated that Fiction is

included in Literature, and even there separated into nationalities ; and Biography and Geography and Travel are merely divisions of History. Various adjustments have been made by librarians. Fiction is usually withdrawn from 800 and arranged alphabetically by the names of authors and marked F, or with some other distinctive symbol. Similarly Biography is arranged in a separate sequence, marked B, and arranged by the name of the biographee. And two alternative adjustments have been suggested for Geography and Travel. One is to ignore section 910 and its subdivisions and to put books on Geography and Travel at the History numbers, merely adding some mark so that the two kinds of books may have separate sequences under the numbers. Another is to remove the class from 900, to substitute a T for the 9, and with this substitution to use the same notation as for history. Other adjustments may be made, but such should only be made after careful thought. As might be expected, the classification is inadequate in many of its details. We instance only one or two, and leave the student to discover other, examples. In 700, the arrangement of Photography is obsolete and does not allow for modern processes ; outdoor sports are not worked out, and there is now a large literature upon them. In other classes various omissions are evident. There is no place, for example, in 900 for the United Kingdom or for the British Empire, which must be placed rather awkwardly at 942. Some objection may be found to the arrangement of the subdivisions of Literature,

which are chronological, and in a large library difficult to follow by the reader who does not know the dates of the author required. Another and much graver fault is exemplified in 133, where Astrology, Palmistry, and other reputable sciences (at least some people think them so) are labelled Delusions. This is *criticism*, not classification, and it is a rule of bibliographical classification that heads which are critical are to be avoided. One other fault the British librarian sees in the scheme is the emphasis on American topics. American literature and history are worked out with a surprising fullness. American literature, for instance, precedes British, a difficult order to justify when the small area and comparative insignificance of American literature is remembered. And, as we have just said, such great subjects as the United Kingdom and the British Empire seem to have escaped Dewey's view entirely.

76. Thus, briefly, we have commented upon the Dewey system. Its notation is ideally flexible, is pure, is not unduly long. It is capable of many manipulations; as in the Subject scheme, for example, nearly every part may be qualified by another. The year 1895 saw a development of considerable importance in the history of classification and of decimal classification in particular. In that year MM. la Fontaine and Otlet, who for six years had devoted themselves to the classification of works on Sociology, initiated what was called the first International Conference of Librarians at Brussels. This Conference eventuated in the formation of a

Bureau at Brussels now known as the International Institute of Bibliography, which had for its objects the perfecting of all methods of recording scientifically the literature of the world. It publishes a *Bulletin de Bibliographie* monthly. This Bureau, which has now developed enormously and is one of the most important bibliographical institutions in the world, indexes on cards all bibliographies irrespective of language and country. Clearly for this herculean task a very minute classification was needed. The International Conference laid down the statement that "the results of the Decimal system of classification are fully satisfactory, not only from a general practical point of view but also for purposes of international co-operation." The Dewey Decimal scheme was accordingly adopted. It must be realised that the scheme required was one for application not to books but to an enormous analytical index or catalogue. Hence a scheme much more minute than the existing Dewey was required; and the Institute, instead of creating a new scheme, took the main classes and divisions of this scheme and slightly modified and enormously extended them. Some sections—Chemistry, for example—are increased and expanded a hundred-fold by the simple process of intercalation. This naturally means a corresponding expansion of the notation, and to prevent the necessity of inordinately long symbols a series of relation marks were designed, a brief résumé of which was given in section 52. These include Dewey's *form* divisions 09, which are written in parenthesis (09) and have the same mean-

ing as in Dewey's tables ; *geographical* divisions 3-9, which are the divisions of History with the suppression of the 9 ; hence (40) is Europe, (44) is France ; a *language* mark written after = and following the form of Dewey's subdivisions in 400 and 800 ; hence =2 is English, =4 is French ; a *date* mark which is merely the year inscribed between inverted commas : hence " 1896 " is the year 1896 ; but if it is only desired to mark the century " 14 " suffices for the fourteenth century, and " 155 " for the period 1550 to 1560, if it is desired to show decades ; the *point of view* mark, . . . 01, . . . 00·2, which shows the object, method, and so on, of the work classified ; and the *relation* mark, :, which relates one topic to another. Thus a mark, broken in form—that is to say any impure one, using several types of symbol—may be constructed from these signs with great economy. At the same time, enormous flexibility is attained by the notation. We have refrained from a long explanation of these marks, as they have been thoroughly explained by Mr. H. V. Hopwood in his paper " Dewey Expanded " (*Library Association Record*, vol. ix., pages 307-22, 1907), and a description of the whole activity of the Institute may be read with many tables and examples, in the *Manuel Abrege du Repertoire Bibliographique Universel*, published by the Institute.

77. A very special scheme of classification, with a decimal basis and method of division, is *A Classification of Library Economy and Office Papers*, by L. Stanley Jast, 1907. This is a scheme for the arranging of all books, and other printed and written

records, of librarianship, as well as a tabulation of the actual materials of library economy. It can be easily applied to correspondence and to similar matters; and its application can be illustrated simply. Correspondence is arranged loose in folders, which are marked with the division numbers, each item is marked with the classification number on its top left-hand corner, and the arrangement within any given number is chronological. The system is best applied to what is known as the vertical system of filing. Its application to this and to books is exactly the same in method as the application of Dewey. The main classes are as follows :

- 0 General.
- 01 Librarian. Personal.
- 1 Legislation. Founding. Classes of Libraries.
- 2 Extension Work.
- 3 Building.
- 4 Government and Service.
- 5 Executive.
- 6 Accession. Description. Conservation.
- 7 Departments.
- 8 Publications.
- 9 Other.

The method of subdivision may be illustrated by one example :

- 7 Departments.
- 71 Lending Library.
- 713 Return.
- 7135 Overdues.
- 7138 Defaulters.
- 71385 Reported to Town Clerk.

It will be noticed that the decimal point is dispensed with, and we may add that the point is not an

essential part of a decimal notation as many seem to think. The system is equipped with a relative index.

78. READINGS.

BROWN. *Library Classification*, chapter iv.

RICHARDSON. *Classification*, pages 113-17, 132-6.

DEWEY. *Decimal classification*. Whole of Introduction.

HOPWOOD. "Dewey Expanded," *Library Association Record*, vol. ix., pages 307-22, 1907.

CAMPBELL. "L'Institut International de Bibliographie," *The Library* (old series), vol. vii., pages 340-6, 1895.

INSTITUT INTERNATIONAL DE BIBLIOGRAPHIE. *Manuel Abrégé du Répertoire Universel*, Brussels.

(Not essential; much of the ground is covered by the two foregoing papers, but a valuable textbook.)

JAST. *Classification of Library Economy and Office Papers*.

SAYERS. *Canons of Classification*, chapter v.

For other elementary descriptions of the Dewey scheme, see BOSTWICK, *The American Library*, chapter xii.; DANA, *Library Primer*, chapter xxi.; and almost every other general textbook on library economy. There is also a large periodical literature upon it, both American and English.

79. QUESTIONS.

(1) What are the principal advantages and disadvantages of Decimal classification?

(2) Write a history of the Dewey classification, and state if you can trace any relation between it and the Baconian scheme.

(3) Classify by Dewey the following :

- 1 TYRRELL. *Christianity at the Cross Roads* (Modernism).
- 2 SMITH. *Moral Evil of Over-Eating*.
3. JONES. *Astigmatism : its Cause and Correction*.
4. DARWALL. *Atavistic Tendencies in the Domestic Animals*.
5. HEINZE. *Bibliography of Aesthetics*.
6. DEFOE. *History of the Great Plague*.
7. MASSON. *Around St. Helena*.
8. HUDSON. *Nature in Downland*.
9. SWEET. *Use of Phonetics in English*.

(4) Justify Dewey's assertion that "no theoretical refinement has been allowed to modify the scheme, if it would detract from its usefulness or add to its cost."

(5) Classify by Dewey and add the Institut International relation marks to the following :

1. *Journal de Chimie* (Chemistry) (French), 1585.
2. *Bibliography of Solar Physics* (English), 1876.
3. *Outlines of German Jurisprudence as compared with those of English Common Law* (English), 1904.
4. Poole's. *Index to American Periodicals*, 1908.

(6) Describe the uses of a classification of library economy.

CHAPTER X

THE EXPANSIVE AND SUBJECT SYSTEMS

80. It will be noticed that all the schemes we have dealt with, from that of Brunet to the present, have inverted the order of the Baconian classification. Whereas Bacon's chart of knowledge commences with human memory, or History, and proceeds gradually backwards through imagination to reason and speculation, or Philosophy, the later schemes proceed in exactly the reverse order, commencing with reason, Philosophy and Religion—which are emanations of the same human faculties—and proceeding through the various human faculties to that of historic consciousness or History. This, then is the explanation of the statement in section 64 that "right down to modern times nearly every scheme has been an inversion, perversion, or adjustment" of the scheme of Bacon. The reversal of the order was the reason why Edward Edwards called such schemes "inverted Baconian"—a term which has been used in many textbooks without an explanation of its meaning.

81. Of the inverted order is the Expansive Classification of Charles Amni Cutter, which appeared in 1891, and is perhaps the most scholarly of all schemes that have been designed hitherto for application to a modern library. It appeared first as *Expansive*

Classification : Part I : The First Six Classifications, and was published by the author at Boston, U.S.A. The name "expansive" is explained by the fact that the classification consists of separate sets of tables, each covering the whole field of knowledge ; the first is very broad, and suitable only for application to quite small collections of books ; the second is subdivided at somewhat greater length ; the third at still greater length, and so each scheme progresses in fullness. It is possible, with certain minor adjustments, to apply the earlier schemes while the library is in its infancy, and to expand to the later schemes with the growth of the collection. This is not to be accepted without reservation so far as the notation is concerned, as the first scheme is :

- A Works of reference and works of a general character.
- B Philosophy and Religion.
- E Historical Sciences.
- H Social Sciences.
- L Sciences and Arts, both Useful and Fine.
- X Language.
- Y Literature.
- YF Fiction.

which becomes in the Sixth Scheme :

- A General Works.
- B Philosophy.
- Br Religion.
- C Christianity.
- D Historical Sciences.
- E Biography.
- F History.
- G Geography and Travels.
- H Social Sciences.
- I Demotics, Sociology.

J	Civics.
K	Legislation.
L	Sciences and Arts.
M	History.
N	Botany.
O	Zoology.
R	Useful Arts, Technology.
S	Constructive Arts.
T	Fabricative Arts.
U	Art of War.
V	Athletic and Recreative Arts.
Vv	Fine Arts. Music.
W	Fine Arts.
X	Arts of Communication by Language.

The expansion of the classes is clear ; but it will be seen that, in practical application, if too early a scheme had been adopted in the first place, in the expansion

E Historical Sciences.

has become

D Historical Sciences.

E Biography.

F History.

G Geography and Travels.

and such a development could only be made on the shelves by re-marking the whole of the class involved and its divisions. Consequently, although the classification schedules expand one into the other, the notation does not, and in adopting the scheme at the outset the author's injunction : " Be minute, be minute, be not too minute," may well be pondered.

82. Both in the order of the main classes, and in the order of the schedules, the scheme is evolu-

tionary, "in natural history putting the parts of each subject in the order which that theory assigns to their appearance in creation. Its science proceeds from the molecular to the molar, from number and space, through matter and force to matter and life ; its botany going up from cryptogams to phanero-gams ; its zoology from the protozoa to the primates, ending with anthropology," and so on through the various divisions of knowledge.

83. The notation is, generally speaking, a pure alphabetical one ; the letters of the alphabet marking the main classes. But there are not twenty-six main classes ; strictly, there are only ten, as in the Dewey scheme, and these are marked as follows :

- A General Works.
- B Philosophy.
- Br Religion.
- D Historical Sciences.
- H Social Sciences.
- L Sciences and Arts.
- R Useful Arts, Technology.
- V Athletic and Recreative Arts.
- Vv Fine Arts. Music.
- X Arts of Communication by Language.

The intervening letters are given to the more important divisions. The method of subdivision, as already explained in section 48, is by the addition of letters ; thus, every main class may be divided by twenty-six letters of the alphabet, if intercalation is necessary to this extent, and every division by another twenty-six, and the process may be continued as far as desirable.

84. The Form Divisions in the Expansive system resemble Dewey's, and have a numerical notation which is invariable and may be applied to any heading. These are :

- 1 Theory of the subject.
- 2 Bibliography of the subject.
- 3 Biography of the subject.
- 4 History.
- 5 Dictionaries.
- 6 Handbooks, etc.
- 7 Periodicals.
- 8 Societies.
- 9 Collections.

Numbers are also used in the Local List, which is an important part of the scheme. Classes F, History, and G, Geography, are subdivided by a decimal number, each in practically the same way. Thus, instead of subdividing by the addition of letters, as in the other classes, these classes are minutely divided by figures. F without a figure is Universal History ; F 01 to F 07 deal with the *periods* of Universal History, and F11 to F99 with Particular Countries. These numbers have an invariable meaning in both History and Geography ; thus :

F45	History of England	G45	Geography of England.
F451	History of British period.	G451	Geography of British period.
F452	History of Norman period.	G452	Geography of Norman period.

and so on. These local numbers may be applied to any part of the system ; thus :

Camping Out in England VDA45 ;

i.e. V, Fine and Recreative Arts ; VD, Outdoor Sports ; VDA, Camping out ; 45, England (geographical number). Or, if we desired to arrange it as a feature of *England* the number might be reversed but should be preceded by the class letter, as G45VDA. This Local List has, therefore, the mnemonic value which belongs to a number which may be applied anywhere in a scheme with an invariable meaning.

85. A Seventh Expansion of the scheme was in progress when Cutter died, and some parts had been issued. The work was continued by experts under the general editorship of his nephew, W. P. Cutter, but has not been completed, nor have any parts been issued for some years. The first Six schemes are equipped with a relative index ; the Seventh has a relative index to each main class, and presents the appearance of a series of very minute special classifications. It is intended to publish a cumulative index of the whole Seventh expansion when the work is completed. Briefly, the Cutter classification, while it does not present the simplicity of notation nor the immediate practical convenience of Dewey's, is far more perfect as a classification ; it is abreast of modern knowledge ; is equipped with minute directions ; is altogether a most valuable and erudite work, and it is much to be regretted that its unfinished state prevents it from ranking as it deserves among classification systems.

86. The last of the predominating schemes of bibliographical classification, and one already estab-

lished in favour in several British libraries, is the *Subject Classification : with Tables, Indexes, etc., or the Subdivision of Subjects*, by James Duff Brown, 1906 (second edition, revised, 1914). It is the highest achievement in England of the classificatory art as applied to books, and although it has not the claim to scholarship that Cutter has, it is simple, expansible, and complete. It has been treated so fully in English library periodicals by Messrs. Savage, Coutts, and Lyster, as well as by the present writer in his *Canons of Classification*, that it is unnecessary here to give more than a brief account of its outstanding features. Although the author makes no claim for the evolutionary order, the characteristics, Matter and Force, Life, Mind, and Record, upon which the main divisions are based, are evidently meant to represent the order of the appearance of things in time—which is a form of evolutionary order, as was shown in section 31.

The main classes and basic notation are as follows :

- A Generalia.
- Matter and Force*—
- B–D Physical Science.
- Life*—
- E–F Biological Science.
- G–H Ethnology, Medicine.
- I Economic Biology, Domestic Arts.
- Mind*—
- J–K Philosophy and Religion.
- L Social and Political Science.
- Record*—
- M Language and Literature.
- N Literary Forms, Fiction, Poetry.
- O–W History and Geography.
- X Biography.

The following are a specimen class, and a division with its sub-divisions :

A	GENERALIA.	A500	GEOMETRY.
Ao	Generalia.	A501	Euclidian Geometry.
A1	Education.	A502	Modern Geometry (non-Euclidian).
A3	Logic.	A503	Fourth Dimension.
A4	Mathematics.	A504	Analytical Geometry.
A5	Geometry.	A505	Plane Geometry.
A6	Graphic and Plastic Arts.	A506	Solid (Volumetric) Geom.
		A507	Curvilinear Geometry.
Ag	General Science.	A508	Quadrature.
		A509	Conic Sections.
		A510	Descriptive Geometry.
		A511	Projection.
		A512	Perspective, etc., etc.

The usual form class, Generalia, opens the scheme, but it will be seen that it differs from the equivalent class in other schemes in that it includes Logic, Mathematics, and the Plastic Arts, on the very debatable ground that they are pervasive of all other classes of knowledge. In the remaining classes the order is based on the belief that every art springs from some definite source, or that every effect has a discernible cause, and the arrangement is from source to application, from cause to effect. Thus, Sound leads up to Music, Light to Optics, and so on. This results in some curious anomalies, as discussed in chapter iii. of *Canons of Classification*. Certain divisions are worked out with great minuteness, especially Music, and the divisions of History and Geography.

87. The notation is of the mixed variety, consisting of a single letter, to mark, in general but not always, the main classes. Division is obtained by figures, 000-999 being (approximately) allocated to each division. These figures are of ordinary arithmetical interpretation, and vacancies are left for new topics; but if desirable they may be used decimally. This alternative is a great advantage. The Form Classes are to be found in Generalia and Record. The Form Divisions are obtained by a process peculiar to the scheme called the categorical tables. These are of numbers, with an invariable meaning, which are added, after a point, to any part of the notation. There are 975 of these categorical numbers as compared with the ten form divisions of the Decimal Classification. A specimen may be given:

- 0 Generalia.
- 1 Bibliography.
- 2 Encyclopædias, Dictionaries.
- 3 Text-Books.
- 4 Philosophy and Theories.
- 6 Societies.
- 10 History.
- 33 Geography.
- 39 Gazetteers.
- 50 Epitaphs.
- 60 Programmes, Playbills, etc.
- 61 Recipes.
- 63 Patents.
- 67 Lectures, Commentaries.

It will be seen from these examples that many of the terms are the names of *subjects* rather than of

“common subdivisions” as they are generally understood.

88. The Index is a specific one, giving only one place for each topic. This has already been discussed at sufficient length in section 42. The scheme is preceded by a very good introduction, which, although defective on theoretical matters, a point the student is now in a position to judge, is valuable as a practical, experienced manual of shelf-placing, and contains many manipulations of notations, some of which have almost the value of annotation.

89. The most recent purely bibliographical development of classification is its application to Fiction. This has been accomplished with more or less success in Zella Allen Dixson's *Comprehensive Subject Index to Universal Prose Fiction*. New York : Dodd, 1897. It is believed that a subject arrangement of fiction would tend to reinforce other subjects, and it is true, for example, that the ideas of history held by most people are derived from fiction. Nothing, in our opinion, can justify the arrangement of fiction in the other classes in a general library ; but there is no rule to forbid it. In the catalogue it may be very desirable to add entries of illustrative fiction. Thus Phillpotts's *The River* may be classed under fiction and also under Dartmoor, as it is a very useful topographical work. Trivial references of this character should not be made, as they serve no useful purpose and may be irritating to readers.

90. READINGS.

CUTTER. *Expansive Classification : the first six schemes, 1891-3 ; seventh scheme*, Ed. W. P. Cutter.

— “Expansive Classification.” In *Transactions and Proceedings of the Second International Library Conference, London, 1897*, pages 84–8.

BROWN. *Library Classification*, pages 63–8.

— *Subject Classification*, Introduction, etc.

RICHARDSON. *Classification*, pages 118–21.

DANA. *Library Primer*, chapter xxii.

SAYERS. *Canons of Classification*, chapter iv.

91. QUESTIONS.

(1) Write what you can in the shape of a history and description of the Expansive scheme, and explain, with four examples, one of which is to be a work of fiction, the application of the Local List.

(2) “The Expansive Classification is expansive in its schedules, but not in its notation.” Show how far this statement is correct and how far erroneous.

(3) Compare the arrangement of Brown’s A Generalia with Dewey’s 000 General Works. Can the thesis that certain subjects, included in the former but not in the latter, are “pervasive,” be supported?

(4) Classify the following six books by the Subject Scheme, using the Categorical Numbers where advisable:

1. MARSH AND DUNN. *Reinforced Concrete.*
2. LANG. *Homer and the Epic.*
3. LAWS. *History of the Non-Kymric Colony in Pembrokeshire.*
4. HAMPER. *Observations on Certain Ancient Pillars called Hoar Stones.*
5. HARLEIAN SOCIETY. *Hampshire Allegations for Marriage Licences.*
6. *Contributions to the Flora and Fauna of Repton, Derbyshire.*

Explain, in addition, Brown's statement that "every science and art springs from some definite source"; and how it is applied in the Subject system.

(5) Classify twelve works of fiction according to the Dewey Decimal system, setting out clearly the subject classified in each.

CHAPTER XI

THE CLASSIFIED CATALOGUE

92. It is only a step from the classification index to that greater key both to the classification of books and to the books themselves, the classified catalogue. The first catalogues, such as those of vendible books issued by Aldus, Gesner and Maunsell, or according to their schemes, were classified. Classification of books on the shelves, as we know it, is a much more recent affair.

93. In modern definition a classified catalogue is one in which entries of books are arranged in the exact order of the classification. Presuming that the catalogue is a complete printed one, it is a book in which the chapters are the main classes of the classification, the divisions its paragraphs and the subdivisions its sentences. The ideal classified catalogue carries the arrangement of the classification out to the most specific place; and then arranges the books, where there are more than one, at the specific place, in some convenient order, such as chronologically by date of first issue, or an order the reverse of this so that the latest book comes first in the list, or in order of authors' names, or an order of merit, which places the best book first, or, again, the elementary book first. The most

logical of these sub-arrangements is the chronological one ; the most popular is the alphabetical.

94. The three forms of catalogue that have the general approval of librarians are the author catalogue, the dictionary catalogue, and the subject or classified catalogue. The author catalogue is of small use except to readers who know (and remember) the names of the authors of the books they want to read. The problem of the dictionary and the classified catalogue is one and the same ; and that is to bring books into relation with one another. This the dictionary catalogue seeks to do by arranging in one alphabet entries for author, subject and title of every book ; the whole forming, as the name implies, a dictionary of entries of the books involved. It is a most popular catalogue, and, if a perfect example existed—the nearest approximation to it is the Catalogue of the Surgeon-General's Library at Washington—it would be invaluable. Unfortunately perfection is very difficult of attainment and is usually far to seek in such examples as I have examined. The principle of subject entry in the dictionary catalogue is the point with which we are mainly concerned. It is this : subject entries in a dictionary catalogue must be made under the most specific heading (or subject) with a reference from the more general subject. This means simply that if we have books on Mont Blanc, the Alps, Lake Geneva, Berne, and Lausanne, we must not enter them under the general class-heading History and Travel, or the division Europe, or the subdivisions Alps, Savoy or Switzerland ;

but directly under

Alps,
Berne,
Geneva,
Lausanne,
Mont Blanc, etc.,

and under the larger headings, Alps, Savoy, etc., we should simply put works that deal with the Alps and Savoy as a whole, and add at the end of the entries for these, the reference "See also Mont Blanc," etc. Now this is a very convenient arrangement for the general reader who wants in the quickest way the books on Berne, Geneva, etc.; but the defects of the method from the point of view of the student are obvious. The five subjects I have named are at five different places in the alphabet, and to exhaust the whole subject these five references and many more would be necessary; in short, related topics are merely connected by cross-references, and are not seen in sequence.

95. On the other hand, the properly constructed classified catalogue can be made to yield all the virtues of the dictionary catalogue, and the invaluable special virtue of its own: that of bringing books into relation in one sequence. The classified catalogue is the classification scheme with the entries of the appropriate books under each heading; and the index to the classification scheme should prove to be the ideal index to the catalogue.

96. The parts of the classified catalogue, in its printed form, may be set out briefly. It should consist of

1.—An outline of the classification, as a contents list showing the general arrangement.

2.—The entries of the books arranged in the precise order of the classification.

3.—Author, subject, and, possibly, title indexes.

The indexes are usually brief, although their limits may be extended greatly if means permit. The following book entry, with its separate index entries will show us what is required in a really good classified catalogue :

Main entry.

575 Darwin, Charles.

Origin of Species. Illus. 375 pages. Cr. 8vo
1855.

Index entries.

Darwin, C.	<i>Origin of Species</i>	.	.	.	575
<i>Darwinism</i>	.	.	.	.	575
<i>Natural Selection</i>	.	.	.	.	575
<i>Origin of Species</i>	.	.	.	.	575

The arranging factor of the main entry, it will be observed, is the notation, the class-mark 575, which brings this book into the group containing all other books on 575 or Evolution; while the indexing is so complete that under whatever form the work is sought it can be found.

97. I cannot do better than take a sample book and catalogue it according to the principles laid down, bearing in mind also the important distinction between cataloguing and classification which I described in section 33—that while the book can go in one place, and in one place only, on the

shelves, it can go into as many places in the catalogue as its composite or other special character seems to require. Here then is our book :

570 DUNMAN, THOMAS.

A Glossary of Anatomical, Physiological and Biological Terms. Edited by V. H. W. Wingrave. 187 pp. Cr. 8vo. 1889.

580 611 612

It will be seen that this valuable little book deals with biology 570—that, indeed, on examination proves to be its dominant topic—and examination also proves it to be concerned with botany, 580, as well as the other subjects named in its title, anatomy, 611, and physiology, 612. (I am using Dewey numbers.) We make all these classification references as shown on the card ; and the cataloguer will make a copy of the entry for each of these references ; so the book is analysed into each of its subjects. One card is sorted under each number, and the classification order is arrived at automatically.

98. It will have been noticed that this system can be applied readily and economically to card catalogues in conjunction with printed cards or cards duplicated in other ways. The great Library of Congress card distributing scheme is worked upon the unit-card principle. That is to say, one card is printed for each book, and on it are shown all the cross-references and related subjects, as in the example we have just examined. For our card catalogue we can obtain as many copies of the unit

card as there are such references, and merely write the cross-reference number on the top left hand corner of the card, in red or other coloured ink, above the shelf-arranging number ; and then insert the card under that added number in our card catalogue. Thus one operation of cataloguing and classification may be made to serve all purposes of main-entry and cross-reference.

99. I wish again to emphasize the tremendous advantage, from the revealing point of view, of the classified catalogue as compared with shelf classification : its exhausting and analysing power. There is little in books of practical use which cannot be got into a well-arranged and exhaustively-indexed classified catalogue ; whereas on the shelves, classification, however perfectly applied, can put a book into one place and no more. The value of the classified catalogue to the student must be evident. He is shown from every useful point of view entries of the whole of the books on every subject in a logical sequence. He can see with very little difficulty all the related subjects ; in short, see the *families* of books ; and so can gauge the extent of any subject with some definiteness. This he can do with no other form of catalogue.

100. A practical point in connexion with all catalogues may be mentioned. Every printed catalogue is necessarily out-of-date the day it is published in relation to a library to which additions and from which withdrawals are made. Thus, the cost of the printed catalogue is beyond the means of most libraries. A MSS. card or sheaf catalogue

can never be open to this objection. The printed *classified* catalogue, however, can be published a class at a time, and so the classes in which alterations are most frequent can be published more often than the others. There is an economy here which is impossible with the author or dictionary catalogue.

101. In printing the classified catalogue the principles of type-subordination implied in the fact that the main classes are the chapters, the divisions the paragraphs, and the sub-divisions the sentences, should be observed as far as possible. The notation is the key to the arrangement, and is therefore printed before each heading ; thus

300	Sociology.
370	EDUCATION.
370·9	History of Education.
370·944	HISTORY OF EDUCATION IN FRANCE.

and under each of the headings, so distinguished and subordinated, the titles of the books are written in the alphabetical or logical order which has been settled upon.

102. The classified card catalogue is made effective by clear and liberal guiding. The card entry itself is as follows :

370.942	Balfour, Graham.	
	Educational Systems of Great	
	Britain and Ireland. 31+307 pp. Ea.2	
	1903. Clarendon Press.	

Figure 1, Card catalogue entry.

The main classes have each a unit guide card ; i.e. a guide card with the tab projecting across the whole of the card. On the tab are written the notation and name of the class ; and lower on the guide the divisions are set out, as shown below (Fig. 2) :

300 SOCIOLOGY
300 General
310 Statistics
etc.

Figure 2, Main class guide card.

Divisions have half guide cards, and sub-divisions quarters or eights, as shown below (Figs. 3-4) :

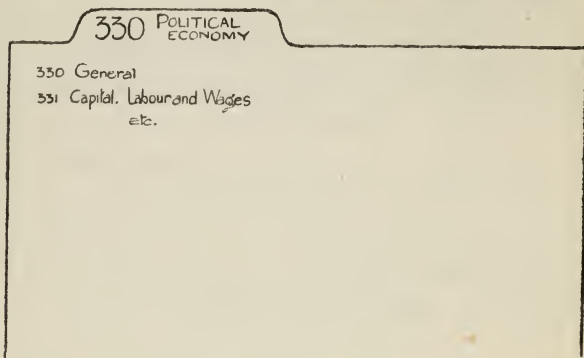


Figure 3, Divisions guide.

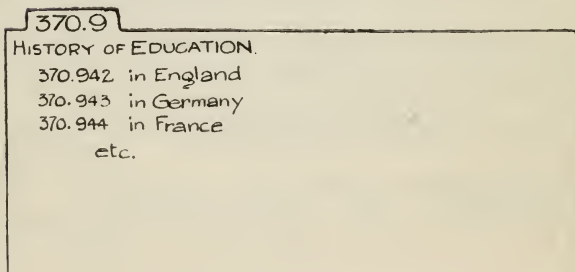


Figure 4, Sections guide.

The subdivisions of each division and subdivision are set out on the cards in the manner indicated.

103. READINGS.

BROWN. *Recent Developments in Library Practice*. In Greenwood's *Year Book*, 1888-1892.

— *Classification and Cataloguing*. Library, vol. ix., pp. 150-156.

VINE. *On the Construction of the Subject Catalogue*. Library Association Record, vol. xi., pp. 486-507.

SAYERS and STEWART. *The Card Catalogue*, chapter vii.

STEWART. *The Sheaf Catalogue*, chapter vii.

104. QUESTIONS.

(1) Define the author, dictionary, and classified forms of catalogue respectively.

(2) Compare the merits of the dictionary and classified catalogues as instruments for revealing the subject matter of books.

(3) What is the orthodox form of arrangement in a classified catalogue; and what arrangements of works may be made under specific headings?

(4) What indexes should be provided in a classified catalogue?

(5) Explain the "unit" principle of cataloguing as applied to the card catalogue.

(6) Assume that you are to provide a classified catalogue of 10,000 volumes, according to Dewey. Explain how far you would sub-divide the subjects; and explain, with examples, the main entries and indexes you would provide. Then write a preface, addressed to the public, explaining how to use your catalogue.

CHAPTER XII

THE RULES AND METHODS OF PRACTICAL CLASSIFICATION

105. WE come now to consider the practical application of classification to the book and to the catalogue, "the highest function of the librarian's work," as Richardson not inaptly calls it. Certain general instructions may be laid down at the outset to govern this work, and to the consideration of these careful attention should be given.

General Rules for Classifying

(1) Classify books first according to their subjects, and then by the form in which the subjects are presented, except in generalia and in pure literature, where form is paramount.

(2) Place a book in the most specific head that will contain it.

(3) Avoid classifications which are in the nature of criticism.

(4) Consider the predominant tendency or obvious purpose of a book.

(5) When two headings clash make a decision as to which is to prevail.

(6) When a book deals with two (or three) divisions of a subject, place it in the one which is most prominently dealt with or, if the treatment

is equal, in the one which is first treated ; when with more than two (or three), place in the more general heading.

(7) Always have a reason for placing a book where you do place it.

(8) When a subject arises which has no place in the classification, consider the heading to which it seems most closely allied, and make a place for it there.

(9) Place a book where it will be most useful.

(10) Index all decisions, or new headings, which are not already included in the index to the scheme which is being used.

106. We may develop these a little, in order to explain them. Already we have made it clear that the subject of the book, where this is defined, is the characteristic by which the book is to be placed. Whatever may be the standpoint from which the book is written, or the form in which it is presented, it is or is not a book on a subject, and must be placed accordingly. Some examples have been given in earlier chapters, but there are little difficulties which can be made clearer by decisions. Adding rule 9—the rule of the most useful place—to the rule we are discussing we may consider two or three books :

- (1) " The Antiquities of Ship-Building."
- (2) " The Legal Aspects of Temperance."
- (3) " The Book-Keeping of Coal-Mining."

Such books as these demand a certain exercise of judgment ; first, what is the subject, and, secondly, is the subject the most useful place. This is usually

settled for these books by the statement just made that whatever the standpoint or form the subject is the thing. It would be difficult to say to whom the antiquities of ship-making would most intimately appeal, but they would doubtless have some value to the student of marine architecture. It is fair to assume also that the legal side of temperance has more appeal to the temperance reformer than to the law student, and the book-keeping of the coal-mine is more likely to be useful to the colliery staff than to the professional accountant, although the two last statements need qualification, as we shall see later. We may crystallise thus :

- (1) The history of a subject goes with the subject.
- (2) The law of a subject goes with the subject.
- (3) The book-keeping of a subject goes with the subject.

and these decisions will be recognised as a mere affirmation of the principle already insisted upon, that, whatever the form or aspect, the subject predominates and determines the place of the book.

107. A book should be placed in the most specific head that will contain it. Cutter's rule, quoted in section 81, "Be minute," is an axiom general to classification. Clearly, if we put all books on Botany, for example, under the Dewey main division number, 580, in a large collection we get a difficult mixture of all types of botanical works. When a scheme of classification is chosen, it should be tampered with only after the most serious consideration. Too often unwise adjustments are made; sometimes the scheme is only used in part, as, for example, three figures of Dewey and no more. It is well to

use the classification as fully as possible in a collection where expansion is in prospect. Consider, if only three figures are used in Dewey's 790, Amusements, the result is a most unhappy mixture of Boating and Ball Games in one place, of Fishing, Hunting, Mountaineering, Shooting, and so forth, in another. Here the schedules need expansion; and in the other parts of the scheme, to restrict the application to three figures would lead to similar confusions. But it is not necessary, except in very large collections, to adopt the entire scheme, as, for example, such figures as Dewey uses for individual Scandinavian authors:

839.982.4. Gustavus Adolphus. *History*.

It is unlikely that an ordinary library will possess a sufficient number of works to make such minute marking worth while; but a distinctive minuteness should exist throughout. This rule is allied to rule 6, which affirms that the predominating subject (or division of a subject) should determine the placing of a book. We may illustrate this from a book dealing with two periods of English history but with one more fully than the other. It might be thought that such a book should take the general head 942, but as the work is really, say, a contribution to Tudor history, with some account of the decline of Tudor influences in the Stuart period, it is clearly a case for placing in 942.05, with a reference in the catalogue from 942.06. Many of the rules are closely allied to these two or three cardinal principles, and it is clear from our placing of *The Legal Aspects*

of *Temperance* at Temperance, that we were considering "the obvious purpose or predominant tendency of the work" (rule 4) and also placing the book "where it will be most useful" (rule 9).

108. The avoidance of placing books according to preconceived notions of them is an obvious necessity. We mentioned earlier that a mediæval method of classifying books was by orthodoxy or heterodoxy, a just enough division if the lines of demarcation between the two were distinctly defined. But they cannot be said to be so to-day, and the classifier must beware of placing by his own critical opinion of a book. We have heard of Campbell's *New Theology* being placed at Atheism, and at Unitarianism. No doubt the classifier thought he had grounds for the decisions, but clearly he had prejudged the book, probably in the light of his own theological convictions. A book on "Squaring the Circle" might conceivably be placed under quackery—and the average unimaginative man in the street, whose intelligence is of the halfpenny newspaper calibre, will agree with the decision—but it lacks sympathy with the remotely possible genius who *may* achieve this impossibility. Dewey's critical placing of Astrology and Spiritism under Delusions, and with Humbugs, is the classical example of the fault we are discussing. A book should never be classified without being carefully examined; and if the point already emphasised that the subject is the thing, whatever may be the aspect of the subject chosen, is borne in mind, the avoidance of critical placings will be simple. It is

essential that the classifier should be as far as humanly possible without bias.

109. There are times, however, when a decision is necessary, and these are provided for by rule 5. A book may deal with two or more headings equally. In that case, if the general heading is not the best place—the general heading will be if the subjects are all in its divisions—it is well to select for placing the book the subject mentioned in the title. If the subject is not mentioned, the subject first treated in the book should be chosen; but even this is subject to the probable use of the book; for, as rule 9 states, the supreme law of our whole study is convenience, and if our library is so constituted, say, that a book which ostensibly deals with Italy would be more accessible and valuable if placed under England, it should be placed there. All considerations of theory ought to give place to the simple inflexible law of convenience; but every care must be taken to judge of convenience. When such a decision is made a record should be kept of the place chosen in an interleaved copy of the index of the classification, or better still on cards, in order that the classifier may always place additions at the same heading.

110. From the foregoing remarks it will be gathered that classification calls for the exercise of an average amount of common sense. Much of the difficulty in the application of existing schemes by inexperienced people, or even by experienced people unacquainted fully with the schemes, arises because the purport of a division is not fully realised. It is

impossible to place books with any degree of accuracy unless the user of the scheme has a complete *conspicuous* of it in his mind and recognises the *main* group into which the subject he is classifying falls. Many subjects are mentioned several times in Dewey, and the novice often puts a book at one of these without in the least considering whether the book articulates into the division of the class in which the name of the subject appears. Thus, we remember that Defoe's *History of the Great Plague* has been classified by more than one librarian under Therapeutics. When this cardinal principle is assimilated it will be clear that classification can never be carried out from the index of a scheme, however good the latter may be. There are, of course, many occasions where the line of demarcation between two headings is so fine as to make the choice of place arbitrary, and it is improbable that any two expert classifiers will place every book alike. This is the justification of the often repeated assertion that classification is an art—something that demands the exercise of judgment—rather than a science—something fixed by inflexible rules excluding judgment. In essentials, however, it will be found that obedience to the rules laid down in this chapter will result in a measure of uniformity.

III. Our remarks have been directed so far to the needs of the general library. The rules apply with almost equal force to the special library, but the place chosen will be determined by the characteristic essential to the purpose of the library. A legal library will doubtless regard any book whatsoever

as throwing light on particular laws ; the anthropological library will treat every book as it bears upon man, and so on. But, after all, this is only another adaptation of rule 4.

112. A difficulty sometimes arises in regard to collected works. Nearly all systems provide a place for such, but it should be used with great care. An author such as Carlyle or Ruskin deals with several definite subjects, as does a series such as the Spanish Series. In these cases the sets should be split up and each volume arranged by its subject-matter. The heading Collected Works is for editions where the specific works are inextricably mingled with other works ; it is a compromise due to the often quoted "physical form of books." Biography presents one or two interesting points. Many of the so-called "lives" of artists and literary men are merely critical appraisals or other treatments of their works. In such cases they should be placed not at Biography but at Art or Literature, or whatever subject they illustrate. All actual Biography which throws any real light on a subject, whether placed at Biography or not, should receive a reference under the subject in the classified catalogue. Again, the raw material of Biography should go with Biography, on the ground that it presents an aspect of the person biographed ; for example, a book entitled *Burns Relics* would be placed with Burns's lives, and a *Collection of the Portraits of Tennyson* would arrange with Tennyson in the same way. It will be found that similar ideas prevail throughout classification, and they are

only an emphasis of the point already several times repeated that "the subject is the thing," and all material of whatever kind should, if possible, be placed at the subject.

113. READINGS.

JAST. "Library Classification," in Greenwood's *British Library Year Book*, 1900-1.

(As this is a most suggestive essay on the everyday aspects of classification, care should be taken to assimilate it thoroughly.)

BROWN. *Library Classification*, chapter v.

Revise the introductions to the Decimal and the Subject classification.

Revise Richardson's *Classification*; Lecture II.

Various articles in the *Library Association Record*, as under, may be read with profit:

ANDERTON. "Books brought into Relation and made Operative." Vol. vii., pages 443-58, 1905.

HOPWOOD. "Reference Shelf Placing." Vol. vi., pages 241-60, 1904.

JAST. "Classification in British Public Libraries." Vol. v., pages 175-82, 1903.

114. QUESTIONS.

(1) State the advantages and disadvantages of break-up collected works and series.

(2) When is a decision necessary in classification? State what principle is involved in decisions, and show how you would record them.

(3) Explain and illustrate by examples (using the Subject Classification in so doing) the meaning of Rule 2.

(4) Draw a diagram of the drawer of a classified catalogue (Dewey) and demonstrate how you would guide it.

(5) Expand Dewey's section 793-799, in order to meet the needs of a special library of 10,000 volumes. Describe the method you adopt.

(6) Classify by the Subject and Dewey schemes, giving alternatives, if any :

1. FITZGERALD. *History of the Bradshaw Time Table.*
2. HALDANE. *The Pathway to Reality.*
3. EDWARDS. *Hints for Travellers Abroad.*
4. HAEKEL. *Riddle of the Universe.*
5. A'BECKETT. *Comic Blackstone.*

CHAPTER XIII

PRACTICAL CLASSIFICATION METHODOLOGY

115. IT is necessary to observe a few practical principles in shelving books, as, however carefully applied a classification may have been, the average reader needs a number of definite finger-posts and guides to enable him to find readily the subject he wants. The ideal order of books on the shelves is the order of the classification ; from class 000 to 999 in Dewey ; from A to Z in Cutter, and similarly with all systems. It is nearly always desirable, however, to deviate from the ideal to meet the exigencies of service. Adjustments are made, too, to suit the needs of the open and the barrier library respectively. Then there is the question of the relative sizes of books. When a class is moved out of its natural sequence in the classification the result is what is called "broken order." This happens when it is desirable, in order to facilitate the service of the library, to place fiction nearest the delivery desk, or to make such adjustments of fiction and travel, or any other class as were commented upon in section 78. In the indicator or other barrier library it is very desirable to have the most frequently used books near the point of service ; in the open access library it is desirable to run the fiction round the walls of the room or to distribute it in some simple

but widely spread manner, in order to avoid congestion of traffic at any point. Broken order should only be resorted to when some definite gain arises from it, as the advantages of a strict sequence of classes are very great.

116. It must be clear that books of varying sizes present a difficulty to the classifier, and former librarians, with more regard for neatness than practical requirements, dispensed with classification by subject and generally arranged all the octavos together, all the quartos together, and so on. No doubt a measure of solidity and tidiness resulted; but the modern librarian who wishes to maintain a strict classification sequence often finds a duodecimo side by side with a folio. To range such books together would not only mean a large waste of vertical space on the shelves, but would also be highly inconvenient owing to the tendency of small books to hide themselves between larger ones. The solution lies in what is known as "parallel" classification; that is to say, the librarian first arranges his books into two sizes or more. The following is a convenient arrangement:

Octavos and smaller works.

(Books not exceeding 10 inches.)

Quartos.

(Books exceeding 10 inches but not exceeding
12 inches.)

Folios.

(Books exceeding 12 inches.)

He then makes three sequences of books on the shelves, one for each size. It is usual to indicate in

the class-mark the sequence to which the book belongs, as, of course, the books range together, irrespective of size, in the catalogue. Octavos receive simply the class-mark; the class-mark of quartos are preceded by q, those of folio by f, i.e. books on general botany in the respective sizes would be marked 580, q580, f580. The method of some libraries is to run the sequences one above another in the same tiers; the four top shelves all along may be devoted to a running sequence of octavos, the next two to a sequence of quartos, and the bottom shelf to a sequence of folios. The sequences must run independently of one another or confusion may occur. In other libraries it is usual to shelve the quartos and folios in respective sequences at the end of each class. A third method, and the one that commends itself to us as least likely to confuse the reader, is to have complete size sequences not of classes but of the whole collection; thus, in a Dewey classified library the complete sequence of 0-9 of octavos, would be followed by q0-q9, and that by a similar complete sequence f0-f9. This would prevent the mystification an unaccustomed reader would probably feel on finding the same numbers at two or more places in one set of shelves.

117. Having classified the books and brought them to the shelves, the arrangement of individual books comprised by the class numbers must be considered. If the Cutter Author Mark is adopted, the arrangement of each topic will be alphabetical by the names of authors (or by the first word not an article in the title of anonymous works), and this is

probably the most convenient method for general libraries. In some libraries, however, the books are arranged chronologically by the date of publication, upon the thesis that every book is influenced by the books preceding it. This is an attractive idea, but it is not easily grasped by all readers. The classifier would do well to determine whether a wider adoption of the alphabetical order would not be more practically valuable than the order proposed by some classification systems. In Dewey, for instance, the classes in 800 are better, for general purposes, in alphabetical than chronological order, but the latter is undoubtedly best for college and similar libraries; Biography, again, is advantageously arranged in alphabetical order.

118. It is not enough to have accomplished the arrangement to this point. Guides are necessary, or desirable, as follows :

- (1) To the plan of the collection.
- (2) To the classes.
- (3) To the tiers.
- (4) To the shelves.
- (5) To individual topics.
- (6) To individual books.

and, in addition to these, various cross-references are necessary.

(1) The best guide to the general collection is a large plan of the library setting out the position of each class, and distinguishing it by a different colour, with arrows or other signs indicating the direction in which the classes run. A framed plan in a prominent position is a valuable key to a library.

Of course this applies, from the public point of view, only to libraries in which the public has access to the shelves, but it may have value from a staff point of view in other libraries.

(2) The classes are guided by a large label placed either at the top of the case in which the class begins or in the top centre of the class. Such class guides may simply bear the name of the main class in large capitals, but they are more useful if in addition they set out the principal divisions: e.g.

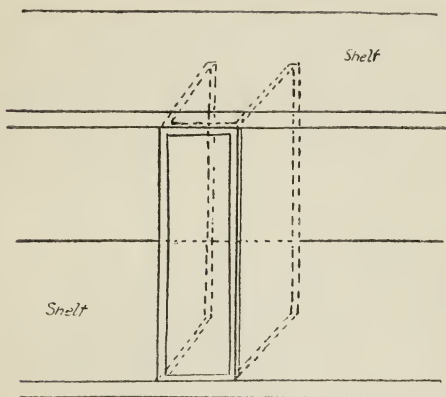
300 SOCIOLOGY.	
300 General Works.	360 Associations and Institutions.
310 Statistics.	370 Education.
320 Political Science.	380 Commerce and Communication.
330 Political Economy.	390 Customs and Costumes (Including Woman and Gypsies.)
340 Law.	
350 Administration.	

Class guide from the Croydon Central Lending Library.

Such guides should always be framed, as nothing is more offensive in a library than dirty and warped guides. In some places in addition a swinging or projecting sign at the end of each case denotes the class contained in the case; so that, standing at a certain angle of vision, the visitor has a conspectus of all the classes before his eyes. This method is adopted in the Islington Libraries.

(3) A good deal of ingenuity has been expended in guiding the tiers. Perhaps the most ingenious method is that devised by Mr. Jast and described

by Mr. James D. Stewart in *The Library World*, vol. vii, page 116. It consists of a block of wood with a framed diagram of the actual shelves fixed in front of it after the following manner :



Mr. L. S. Jast's tier guide.

The subjects contained on the various shelves are written on the appropriate spaces on the diagram.

This excellent guide is rather expensive and has the additional disadvantage of occupying the average space of three volumes in each tier ; it is, however, the most effective guide we know. Another very good method is that described by Mr. E. A. Savage in *The Library World*, vol. viii, pages 261-6, in which a schedule of the subjects covered by the tier is fastened in a large cover and inserted at a suitable place in the tier.

(4) Guides to individual shelves are satisfactory only in fixed location systems, where the topics have

invariable places on the shelves. Where they are used, a label as shown :

370 EDUCATION.

is affixed to the front edge of the shelf. The difficulty of applying these to a relative location is that the moving up of books to accommodate additions involves the moving of the labels. Such labels, however, are stocked by the various firms dealing in library requisites. They are usually protected by a xylonite label holder which folds under the shelf.

(5) The guiding of individual topics has received much attention in open shelf libraries. A favourite method is the insertion of a narrow block resembling a book, with the name and number of the topic running up it vertically, amongst the books at the beginning of each topic, as shown :

370 EDUCATION.

Newbury's topic guide.

The size is about that of an ordinary octavo ; the back is flat and is about half an inch in breadth. These guides are made in cloth-covered millboard by a binding firm for a few pence each. The objection

to the guide is that it is easily confused with a flat-backed book. A simple method (not recommended) is to cover a discarded book with white paper and use it as above. Another guide, tried with considerable success, is a thin sheet of millboard covered with white paper on which the topic is written at the top corner, the whole being varnished to preserve it. This sheet is $7\frac{1}{2}$ inches by $9\frac{1}{2}$ inches, and is inserted at the beginning of the topic, and, being larger than the surrounding books, its information shows above them. The result is that the reader standing at the end of the shelf sees all the topics by glancing along it. As the topic appears on each side of the card (in that top corner nearest the front edge of the shelf on both sides, of course), he is able to see from either end all the topics the shelf holds.

(6) The method of guiding the individual book is generally by showing the class mark and alphabetizing number in some way on the back of the cover. Wherever possible, it is preferable to stamp these in gold on the binding, but as in most libraries this necessitates a visit of the book to the bindery, paper tags or a white paint are generally used. Several white paints are suitable; we may instance that made by Cedric Chivers, Ltd., but they have all a tendency to wear off. Tags are used in various shapes and colours, but a round white tag will answer all purposes. Polychrome tags, however, have been extensively used; one library, indeed, experimented with a tag made up of proportions of colours representing the main class, the division, and the section; thus 300 might be blue, but 310 would be

two-thirds blue and one-third yellow, while 315 would be three-sixths blue, two-sixths yellow, and one-sixth red—and the whole formed one tag! I do not recommend this picturesque method, for the very practical reason that if it were carried out in a large library the staff would have no time for any other work than the making of tags. Colours are usually confined to classes; thus all 000 may be red, all 100 blue, all 200 green, and so on. The distinction between classes is often indicated by shapes; the tag for 000 being round, that for 100 triangular, for 200 square, and so on. But, as already remarked, a round white tag would meet all requirements. A minor discussion has taken place as to where upon the back of the book the number, or tag bearing the number, should be placed. Most librarians prefer a position one inch from the bottom of the book on the score of regularity and neatness. Others prefer it as near as possible to the top on the score that the bottom of the book is the part most handled and numbers there are more likely to be rubbed off; moreover, the number at the top is said to strike the eye more readily. The method of writing the number on the back of the book is usually in the form of a fraction, the class number being the numerator and the author number the denominator, as:

$$\begin{array}{ccc} 581 & & 581 \\ \text{Hoo} & \text{and} & \text{H49} \end{array}$$

119. Whenever a book is moved out of its natural sequence in the classification, a reference should be

made on the shelf to its absence and to the place where it is to be found. In Fiction when, as is now frequently the practice in libraries, a pseudonymous book is shelved under the real name of the author, a flat block about the height of an octavo and one inch thick, bearing on its edge the pseudonym and the reference to the real name, should be inserted ; as

SAND, George. See DUDEVANT.

Edge of pseudonym reference.

Where oversize books are placed at the end of the class or elsewhere on special quarto and folio shelves, a dummy book—a wooden block resembling the above—should be placed in the correct place in the octavo sequence, and should bear on its edge the class-mark, author, and the title of the book, and on the side the following legend :

“ This book is too large for the ordinary shelves, and will be found in its order on the special shelves for Quartos and Folios at the end of the class.”

Various applications of this reference dummy are explained by Mr. J. D. Stewart in *The Library World*, vol. ix, pages 208-11, 1906-7.

When these guides are provided the library may be assumed to be appropriately set out for public use.

120. We have now concluded our rapid survey of the main features of the art of classification. I am conscious that the ground has been covered scantily, but the difficulty of organising the large amount of hitherto undigested writing on the subject has been no small one. I would impress upon the reader the nobler idea of classification; not as a means merely of arranging books, but a method, adopted by Bacon and followed by all great thinkers since, of so organising knowledge that its strength and its deficiencies may be clearly exhibited, in order that the intellectual worker may not work in already tilled fields, but may find still uncultivated fields for his labours. If by our intimate knowledge of classification and its application we may render the path of the intellectual worker clearer, we shall to that extent have brought into our work the spirit not of the artisan but of the artist.

121. READINGS.

SAVAGE. "Classification Guides and Indexes." *Library World*, vol. viii., pages 261-66, 1905-6.

STEWART. "Guiding an Open-Access Lending Library." *Library World*, vol. ii., pages 113-8, 1904-5.

— "Oversize Books." *Library World*, vol. ix., pages 208-11, 1906-7.

BROWN. *Manual of Library Economy*, chapter xvii. edition 3, 1920.

(The student would do well to run through chapters xv.-xvi. by way of revision.)

- HULME. "Classification in the Patent Office Library."
Library Assistant, vol. iv., pages 27-33, 1903-5.
- COUTTS. "Classification and Shelf Guiding." *In* Brown,
and Others. *Open Access Libraries*, chapter v.
- BROWN. *Library Classification*, chapter v.

122. QUESTIONS.

- (1) Draw a rough plan of an open access library classified by the Subject system, showing the distribution of classes. Explain it.
- (2) Describe what class guides you would adopt in a classified library.
- (3) Why are shelf guides difficult of management and what would you suggest in place of them?
- (4) Describe all the methods known to you of guiding the individual book.
- (5) Define, with examples, "broken order."
- (6) What is meant by "parallel classification"? Describe its varieties.

PART III

A SHORT COURSE IN PRACTICAL CLASSIFICATION, WITH SPECIAL REFERENCE TO THE DECIMAL AND SUBJECT SCHEMES

CHAPTER XIV

PRELIMINARY

123. THE following pages consist of severely practical hints on the methods of approaching a classification scheme, the difficulties most frequently encountered in applying it and how to overcome them, and carefully selected book-titles which illustrate these things. They are designed for students who have pursued a course of reading in the subject such as is provided in Parts I. and II. of this book, but whose circumstances make the daily application of classification difficult, and who therefore require some such systematic discipline as these papers provide. The plan has been to give one lesson to each of the main classes of the Decimal Scheme, except Literature and Philology which are combined in one, and History which is divided into two; to study its scope and difficulties *seriatim*, and to make a similar and simultaneous study of the corresponding sections of the Subject Scheme.

124. Difficulties in the course arise from the fact that Practical Classification is necessarily a matter

of practice, and I could be sure that you perfectly understand your work only by handling books in company with you. I shall draw examples, whenever possible, from actual books in all departments of literature for you to classify by the Decimal and Subject systems; and this will be the important part of the course. But I expect you to be able to assign definite reasons for every process that you undertake. Every decision must be justified in your mind; and every difficulty you meet should be resolved as clearly as possible. Remember that every question and example set has a definite purpose, and do not pass over anything that appears to be difficult.

125. The indispensable books for the course are *The Decimal Classification* (seventh or later editions, Library Bureau) and *The Subject Classification* (Grafton).

126. We shall consider the practical rules of classification in the first lesson, and then devote the remainder of the course to purely *practical* work, with one fairly exhaustive test question in theory in each lesson. As theoretical *and* practical work are required in examinations, I need not urge the necessity of keeping up your theoretical studies.

CHAPTER XV

METHOD OF APPROACH. GENERAL WORKS. GENERALIA

127. The approach to the scheme must always be through the main tables in this order :—

(a) Read the first outline, and consider the order of knowledge in the compiler's mind ; and discover the characteristic chosen for the basis of the arrangement.

(b) Turn to the second outline. In each case (Decimal and Subject) endeavour to commit this outline to memory. This can be done gradually—learn the main headings first.

(c) Now read the Introduction.

(d) In classifying a book, use the main tables and avoid the use of the index.

128. Commence the process of classifying a book by asking yourself the following questions :—

(a) What is the subject of the book ?

(b) What is the form in which the subject is presented ? Turn then to the main tables and consider :—

(a) What is the main heading embracing the subject ?

(b) What is the division ?

(c) What is the specific place ?

This procedure is specially important in the Decimal system, where a subject may appear half a dozen times and *each in a different relation*. The main heading is the only check in such cases.

Having reached the specific subject, inquire :—

Does the book deal with any other topic than the predominating one ?

If so the work must be cross-referred from that heading.

129. The practical rules of classification are set out and discussed in Chapter XII., which should be thoroughly understood before you proceed.

Generalia. General Works

130. A comparison of the generalia classes of the two classifications, reveals, as is shown in section 86, that in the Subject scheme a different view of the functions of the class prevails from that which has its expression in the Decimal scheme. These are the outlines :—

	<i>Subject.</i>		<i>Decimal.</i>
A	GENERALIA.	000	GENERAL WORKS.
A0	Generalia.	010	Bibliography.
A1	Education.	020	Library economy.
A3	Logic.	030	General cyclopædias.
A4	Mathematics.	040	General collections.
A5	Geometry.	050	General periodicals.
A6	Graphic and Plastic Art.	060	General societies.
A9	General Science.	070	Newspapers.
		080	Special Libraries, Poly- graphy.
		090	Book rarities.

The theory underlying the Decimal class is that it is to accommodate books, etc., of so composite or general a character that they will not go into any subsequent subject class in the scheme ; thus 010, 030-070 are all headings which are, or might be, prefaced by the word "general." Library Economy is justified here on the ground that it covers the manipulation of every kind of book ; and Book Rarities are books in which the subject interest is subordinated to other considerations, and therefore their special interest, which may be type, paper, illustration, binding, or all of these, would be lost if they were classified by subject. Special Libraries is a heading for collections of books, which may indeed classify elsewhere, but which it is desired to separate from the other parts of the library, because they have been received by gift, or for some other reason. Such collections may be divided by the main classification tables ; thus a book in a special gift collection entitled *Roman Antiquities* might be marked 08="Special Library of," plus 937="Roman History" ; and the complete number therefore appear as 089.37. The only other heading which causes trouble is *General Collections*, which is really (as Dewey shows in his third summary) *General Collected Essays* ; and as the name of the heading implies, it takes essays of so miscellaneous a character that they will not go without strain at any subject or at the form "essays" in 814, 824, 834, etc. ; i.e. bound pamphlets, essays, addresses, scrap-books, etc. Thus, a volume entitled *General Pamphlets in French* would be marked 044.

131. Special attention should be paid to the subdivisions of 010, Bibliography. In most libraries the rule that "the bibliography of a subject goes with the subject" is followed, but some librarians prefer to keep all bibliographies in one class. This brings in the heading 016, which is sub-divided like the main classification. Thus the *Bibliography of Evolution* is marked 016.575.

132. In turning to the Subject generalia class, we have to remember Brown's view that it accommodates not only books which are too general to go at subject headings, but also those on subjects which are pervasive of all other subjects or which do not seem to go at any special subject heading without strain. Hence A1, Education, which in Dewey goes at 370 as a division of Sociology; A3, Logic, which in Dewey is a development of the mental faculties heading in Philosophy at 160; A4-5, Mathematics, which Dewey regards as part of Science at 510; A6, the Graphic and Plastic Arts, which form the basis of Dewey's 700; and A9, General Science, which is similar to Dewey's 500-509—all these are included in Brown's Generalia. On the other hand, Brown places Bibliography as a subject at M7 as a division of Language and Literature, and Library Economy at M9 as another division of that class. With the theory, on which this arrangement is based, I am not concerned here from a critical point of view, but the result is interesting and must be thoroughly understood. It is not a difficult arrangement to understand, and works easily in practice.

133. READINGS.

BROWN. *Subject Classification*, pages 7-11.

(A very important part of the Introduction);
and pages 79-87. Learn from A to Fg on page 80.

DEWEY. *Decimal Classification*, pages 6-19.

Also first three summaries and Main Tables to
099. Learn from 000-090 of Second Summary.

JAST. "Library Classification," in Greenwood's *British Library Year Book*, 1900-01.

134. QUESTIONS.

(1) Place a book under each of the seven divisions of the Subject class A, Generalia; classify the same books by the Decimal scheme.

(2) What does Brown omit from his Generalia—when compared with Dewey's General Works—and where does he place the subjects omitted? Can you account for these changes?

(3) The following novels have definite subject-matter. Classify them *by subject*—ignoring form—by the Decimal and Subject schemes, and give a brief note under each, saying what you suppose the subject of the book to be:

1. WARD. *Robert Ellesmere*.
2. READE. *Foul Play*.
3. DICKENS. *Bleak House*.
4. SCOTT. *Woodstock*.
5. BELLAMY. *Looking Backward*.
6. DOYLE. *Sherlock Holmes*.
7. STEELE. *On the Face of the Waters*.
8. FOTHERGILL. *First Violin*.
9. CARLETON. *Black Prophet*.
10. VACHELL. *The Hill*.
11. LONDON. *Call of the Wild*.
12. VERNE. *Twenty Thousand Leagues Under the Sea*.

(4) Classify by both systems the following books ; give alternatives where necessary :

1. YOXALL. *The A. B. C. About Collecting.*
2. *Woodcraft for Boy Scouts.*
3. DASENT. *Speakers of the House of Commons from the Earliest Times to the Present Day.*
4. AULDJO. *Narrative of an Ascent to the Summit of Mont Blanc in 1827.*
5. KEARY. *The Pursuit of Reason.*
6. RIDGEWAY. *The Origin of Tragedy : with Special Reference to the Greek Tragedians.*
7. *Pictures from Punch.*
8. LODGE. *Family History : the Champion, Marmion, and Dymoke Families.*
9. BURKE. *Visitation of the Seats and Arms of the Noblemen and Gentlemen of Great Britain and Ireland.*
10. WALLACE AND GAGE. *Encyclopædia of Chronology.*
11. *Encyclopædia Britannica.*
12. *Encyclopædia of Needlework.*
13. JAST. *Classification of Library Economy.*
14. TWAIN. *Innocents Abroad.*
15. *The Hibbert Journal.*
16. *The Spectator* (the Weekly).

In all exercises classify after examination of the actual books whenever possible.

(5) *Test in Theory.* Answer the following question in not more than forty minutes without reference to your text-books :—

“State briefly, with any explanations you are able to offer, the fundamental logical rules of classification.”

CHAPTER XVI

PHILOSOPHY

135. IN the Decimal Classification, 100, Philosophy, is a separate class ; in the Subject Classification it is the first part (J000-J382) of J-K, Philosophy and Religion.

136. The order of the two schemes is in general similar. Æsthetics, however, has been transferred to Dewey's 701 under Fine Arts, while Brown does not include in this class the topics in Dewey's Mind and Body (130) as a whole, but places them under Nervous Systems, G700, and subsequent headings.

137. We deal first with this class in the Decimal Classification and note the following points.

(a) Do not confuse the functions of 140 and 180-190. The note under 140 explicitly states that the heading is for the "discussion of systems as such," and that the actual writings of philosophers go in 180-190. Hence, the heading should always be borne in mind ; a book entitled *Modern Epicureanism*, for example, cannot go in 187, but *must* be placed under the most appropriate topic in 140. A book on "*Modern Epicureanism*" clearly cannot be one on the ancient philosophers. The further notes under 140 should make this plain. Positivism,

for example, is the doctrine of Comte ; but only Comte's own exposition—and books directly bearing upon Comte—may go in 194·8. Any discussion of the meaning, advisability, practicability, or any other phase of Positivism must go in 146.

(b) Be careful not to confuse 109 with 180–190. Remember that 109 can only take general works like Lewes's *History of Philosophy*, and not such as Zeller's *History of Greek Philosophy*.

(c) Do not confuse the topics in 110–120 with the Christian view of them in 230–260. For example, a book dealing in a non-theological manner with immortality, as Delanne's *Evidence for a Future Life*, is best in 128, but Farrar's *Eternal Hope* is distinctly 237.

(d) A difficult heading is 130, Mind and Body. It is usual to collect all phases of the mind—physiology, anatomy, etc., as well as the phenomena upon which the mind works (except those topics which are embraced by 150, Mental Faculties) under 130. But where the question is one of disease, involving therapeutics, surgery, etc., the works should go under 600 (with a reference in the catalogue from 131–132). A book on *Suggestion in Brain Trouble* is 131, a book on *Trepanning to Cure Paralysis* is 617·51. You will feel some difficulty in placing Astrology, etc., under Delusions, but the classification requires this, and it must be done.

(e) There are a large number of cross-references from 170, Ethics, to be considered. Questions of State Ethics, for example, must not be confused with Social Science. Ethics must always be re-

garded as the treatment of subjects "with a view to ascertaining their justice and righteousness in the control of conduct."

138. As we noted that the extension of the Brown class Philosophy was less than that of the Dewey, so we also note that the restricted area of the former is worked out with greater fullness in Ethics, J200-293, and this is the larger part of the class. A careful study of this section will elucidate many of the difficulties in Dewey's 170. Note carefully that many of the topics in Dewey's 120 are placed (erroneously as I think) under Brown's J150, Psychology. *But follow Brown's rule when dealing with the Subject scheme, and Dewey's when dealing with the Decimal.*

139. The classification of books on Philosophy demands imperatively:—

(a) A knowledge of the meaning of the terms used in the schedules. Therefore, look up carefully any words you do not understand in Baldwin's *Dictionary of Philosophy*. If you have not access to this, go to Murray's *Oxford English Dictionary*. Be sure you get the right meaning of the terms, which can usually be done by reading the classification scheme from the terms to the main headings in which they appear as I have already recommended.

(b) A clear understanding of the fact that books on philosophy deal with abstract subjects in pure thought; that works on definite topics from a concrete standpoint do not go here.

140. READINGS.

BROWN. *Subject Classification*, pages 11-20 (pars. 5-15).

I cannot lay too great stress upon these pages. The definitions should be understood thoroughly, and the remarks on notation and its adjustments, especially the use of national numbers, should be quite clear to you. It is a general ruling that *Books should be placed in the Subject scheme under the specific head with Categorical numbers for their forms.* Note carefully the use of the subject number with local or other qualifications on page 19.

Read Main Tables of Subject Scheme, J000-J382.

Learn from G0-J19 on pages 80-81.

DEWEY. *Decimal Classification*, pages 19-31.

The more valuable part is page 25 *et seq.* The remarks under "assigning class numbers" are vital to an understanding of the system. Assimilate them thoroughly.

Read Main Tables 100-199, paying attention to the notes.

Let this be comparative reading. Place class J-K of the Subject beside Dewey's 100, and reason out the resemblances and differences. Such matters as the comparative scope of Dewey's 140 and his 180-190 should be carefully considered.

Learn 100-190 of the Second Summary.

PURNELL. *The Development of Notation in Classification*
In *The Library Assistant*, vol. viii., pages 25-33
44-50.

A very helpful paper on notation variations.

141. QUESTIONS.

(1) What does Dewey mean by the phrase "divide as 940-999" when applied to the subject classes of his

scheme? And how is a similar result obtained in the Subject Classification?

(2) Classify the following by Dewey and Brown:

1. TWAIN. *Christian Science.*
2. DESCARTES. *Œuvres.*
3. COMTE. *Philosophy of the Sciences.*
4. WESTERMARCK. *Origin and Development of Moral Ideas.*
5. LIFFINGWELL. *Vivisection Controversy.*||
6. BOSANQUET. *History of Æsthetic.*
7. BRADLEY. *Appearance and Reality.*
8. ALLBREE. *History of English Utilitarianism.*
9. PILLSBURY. *Attention.*
10. PFLEIDERER. *Development of Rational Theology since Kant.*
11. HEGEL. *The Phenomenology of Mind.*
12. KEARY. *The Pursuit of Reason.*
13. BINET AND FERÉ. *Animal Magnetism.*
14. MITCHELL. *Laughter, Dreaming, and Blushing.*
15. JAMES. *Pragmatism.*
16. BURTON. *Anatomy of Melancholy.*
17. BERTHOLET. *Transmigration of Souls.*

(3) Classify by Dewey (imaginary titles), giving in the fewest possible words the subject by which you classify:

- The Brain as an Organ of Mind.*
The Iniquity of War.
The Gothenburg Licensing System.
The Art of Brewing.
Temperance Reciter.
Proceedings of the Social Purity League.
The Nature of Being.
Fallacies in Thought.
Mental Medicine and Healing.
The Æsthetics of Painting and Music.
The Journal of the Psychic Research Society.

(4) Show, *by six examples*, the meaning of the rule that "Books should be placed in the Subject Scheme under the specific head with Categorical numbers for their forms."

(5) *Test in Theory*. Answer the following question in not more than forty minutes without reference to your text-books.

"Terms have an invariable meaning in classification."
"The use of two characteristics in classification would lead to cross-division." Explain these statements with examples.

CHAPTER XVII

RELIGION

142. DEWEY'S section 200 may be said to divide into four definite parts, as follows :—

- 200-219 General Religion.
- 220-229 Scriptures, Hebrew and Christian.
- 230-289 The Christian Religion.
- 290-299 Non-Christian Religion, and Scriptures.

It is necessary to a proper understanding of the class to realise the scope of each of these divisions. The *Scriptures* is quite clear, but General Religion is often confused with the divisions more clearly confined to Christian Religion. For example, a work on Deism necessarily deals with God. If we have a book entitled *God in Nature*—the existence of a Supreme Being apart from Scriptural revelation or Christian tradition—it clearly belongs to Natural Theology, and is placed under 211, not under 231. A book which treats of the nature, attributes, or any other aspect of God from the teachings of the New Testament Scriptures or the Christian churches is 231 and not 211. A discussion of *Prayer in the World*, which describes the kinds and modes of prayer in all lands and religions, or, indeed in more than one, is 217 and not 249 or 264. Similarly, throughout the divisions 200-219 the subjects are not definitely Christian or non-Christian, but all-embracing. Be

careful not to misunderstand the meaning of 201, which theorises on religion as a whole, and (say) the theories proper to 239 ; or to confuse 209, which is the history of all religions, with 270, which is purely Christian, or with (say) the History of Judaism or Mohammedanism, which are 296 and 297 respectively.

143. The divisions, Bible, 220-229, are quite simple. The general principle must, however, be remembered that "works about works go with the works." Hence a criticism of *Lamentations* is 224.3, and a collection of sermons on the Miracles is 226.7 and not 252. This is merely a reaffirmation of the axiom that "the subject is the thing."

144. In placing books in 230-289 special attention should be paid to the main headings. The headings in 240 must not be confused with 800. Books of Miscellany, 244, are merely fugitive religious ana, tracts, etc., not works primarily literary. Similarly 245 is best confined to hymns and purely devotional verse. Our meaning is clearer when we say that Milton is a religious poet, but his works must go in 821 ; Herbert, Crashaw, and Keble are best in 821.

145. Be careful to note how national divisions are made under 274-279, and ethnical divisions under 299. (The paragraphs under "Building Numbers" —page 29 of Dewey's *Introduction*—will make this clear.) Put everything relating to Non-Christian religions under 290—liturgies, scriptures (where definitely known as such, but do not confuse them with Oriental or other philosophies), ritual, history,

and all other aspects. It is best to regard Mythology, 291-293, as only comprehending works involving deities. Other folk-tales—erroneously placed at 291 sometimes—properly go at 398.

146. In several ways the Subject Classification in J400-K990 assumes the same arrangement, but there are modifications. The principal are :—

(1) Folk Lore and Occult Science are made cognates of Mythology and follow it.

(2) Psychical Research, which is part of Dewey's *Philosophy*, is included.

(3) A series of general heads under J600 is for all forms of churches. Note very carefully the use of the categorical numbers under J600 and J800.

(4) Canon Law, which in Dewey is 348, is included under Church Government.

(5) Ecclesiastical Buildings, in Dewey 726, are J850-J865.

(6) K000-090 are Non-Christian Religions.

147. READINGS.

BROWN. *Subject Classification*, pages 20-26 (pars. 16-28)

Valuable rules for clearing many difficulties in placing books.

Read Main Tables of Subject scheme J000-K990.

Compare, as before suggested, division by division with Dewey's 200, and make notes of all divergences.

Learn from J0-K9 on page 81.

DEWEY. *Decimal Classification*, pages 31-38.

Pay special attention to the adjustments permitted in Biography, Travel, etc.

Read Main Tables, 200-299.

The notes are to be studied carefully.

Learn 200-290 of Second Summary.

148. QUESTIONS.

(1) Classify the following by Dewey and Brown :

1. ROBERTSON. *Short History of Free Thought.*
2. *Apocryphal Gospels.*
3. PALEY. *Natural Theology.*
4. MAUNDER. *Astronomy of the Bible.*
5. MEAD. *Did Jesus live 100 B.C. ?*
6. PETERS. *Early Hebrew Story.*
7. BUTLER. *Analogy of Religion.*
8. BASIL, Saint. *On the Holy Spirit.*
9. HUXLEY. *Science and Hebrew Tradition.*
10. FISHER. *History of Christian Doctrine.*
11. SABATIER. *Modernism.*
12. TAYLOR. *Holy Living and Dying.*
13. NEWMAN. *The Arians of the Fourth Century.*
14. SIMPSON. *The Buddhist Praying Wheel.*
15. CHURCH. *Oxford Movement.*
16. NASSAU. *Shinto : the Way of the Gods.*
17. GAIRDNER. *Lollardy and the Reformation.*
18. SMITH. *Religion of the Semites.*

(2) Classify the following by Dewey and Brown :

1. MILTON. *Comus.*
2. RUSKIN. *Queen of the Air.*
3. PALMER. *Book of Praise* (verse).
4. LEWIS. *The Advertisements in "The Spectator."*
5. PASCAL. *Provincial Letters.*
6. BURTON. *Book Hunter.*
7. MARTINEAU. *Religious Life in England.*
8. BURKE. *Thoughts on a Regicide Peace.*
9. RAYMOND. *Painting as a Representative Art.*
10. *Chambers's Journal.*
11. JAMES. *Pragmatism.*
12. FRAZER. *Golden Bough.*
13. PARISH. *Hallucinations and Illusions.*

14. RIBOT. *Diseases of Memory.*
15. COMBA. *History of the Waldenses of Italy.*
16. GAMMAGE. *History of the Chartist Movement.*

(3) Indicate briefly, with *examples* illustrating each statement, the differences between the treatment of Religion in the Dewey and Brown schemes.

(4) Classify by Brown (with categorical numbers) :

Imaginary Titles.

1. *Encyclopædia of Occult Science.*
2. *Handbook of Logical Evidences of Witchcraft.*
3. *History of Alchemy.*
4. *Theories of Justice.*

Novels by Subject.

1. WELLS. *War of the Worlds.*
2. FARRAR. *Darkness and Dawn.*
3. ERCKMANN-CHATRIAN. *Waterloo.*
4. SCOTT. *Quentin Durward.*
5. DICKENS. *Nicholas Nickleby.*
6. WALLACE. *Ben Hur.*
7. BRONTE. *Villette.*
8. HAWTHORNE. *Scarlet Letter.*
9. THACKERAY. *Esmond.*
10. DOYLE. *Rodney Stone.*
11. STOWE. *Uncle Tom's Cabin.*
12. PEACOCK. *Maid Marian.*

(5) *Test in Theory.* Answer the following question in not more than forty minutes without reference to your text-books :

“ Define the peculiar differences between Philosophical and Bibliographical Classification, giving an example of each ; and define the difference between natural and artificial characteristics as the basis of arrangement.”

CHAPTER XVIII

SOCIOLOGY AND ECONOMIC SCIENCE

149. IF we bear in mind the important principles laid down in chapter xv., on the correct approach to a scheme, we shall find class 300, Sociology, in the Decimal System, simple. But it is easy to make mistakes if the student classifies by specific subjects rather than by main divisions ; and we must affirm again that the student must always trace the place at which he enters a book upwards to the main heading. If the book comes within the main heading it is correctly placed. For example, the use of the headings under 380 for books on construction often causes confusion, whereas a tracing back to the main class would make it quite clear that only works on the economic or political aspects of the questions may legitimately go here.

150. Sociology may be sufficiently defined as "men in community," or "man in relation to other men." Thus we have here the family, the school, the town, the state, and their various manifestations in Parliament, Law, the Military and Naval Services, Associations, Customs, and other forms necessary to or usually accompanying corporate life.

151. It is not customary to use headings 345 and 353 in British Libraries as these are purely American.

152. The remainder of the class calls for small comment. If it is remembered that the whole view is economic throughout it will help the student greatly. Care should be taken to read the notes. That under 321 is important, and merely means that 321 is for *theories*; 342 for the *law, and history of the law*, of actual states (i.e. Maitland's *Constitutional History of England* is 342·2); and 353-354 are for *methods* of actually existing states. Important geographical divisions occur at 324·4; 325·2-3-4; 326·9; and 327 is most important. Relations between England and Germany, for example, are best marked 327·43 and referred from 327·42. Similar geographical divisions pervade the class.

153. Further hints:

(1) Do not confuse the subjects under 333·7-8-9 with the practical aspect of them in 600; i.e.:

Forestry is	634·9
Mining is	622
Fisheries are	639

(2) There are two uses of Money topics in 332 and 336. The former may be called the private use of it, the latter the public. 332 takes all private uses and cares of money; 336 is for government and local government finance, taxation, rating, etc., and valuations and loans in connexion with public moneys.

(3) Look up the meanings of the various topics under Law; these are often a source of trouble. There is an unusually important note under 347:

“ the law of a subject goes with the subject.” Be sure you understand this.

(4) Under military and naval science the *general* histories of war are placed: when military and naval history are both treated in one volume put in 355 and refer from 359. A history of a campaign or war confined to a particular country goes in the country.

(5) Consider carefully the difference between 343 and 364-5. The former is Law, the latter take accounts of the actual institutions and their inmates.

(6) Note that 379, Public Schools, means State-Supported Schools (an American use differing from our conventional use of “ public ” schools, which means such schools as Eton, Harrow, etc.). English public schools would be 373.

154. The corresponding class in the Subject Classification divides up into seven broad divisions :

1. Social Science.
2. Political Economy.
3. Political Science.
4. Administration, Central and Local.
5. Law.
6. Commerce.
7. Finance.

It differs from the Decimal Classification in excluding the whole of the division Education (which is transferred to Generalia, A100-186). It also excludes Military and Naval Science, which in Dewey is a part of Administration (in Brown it is a separate class under Physical Science at B800-995). An important exclusion is Folk-Lore which

does not appear under the Subject Classification number L010, Manners and Customs, but is made a cognate of Mythology, and follows that heading at J520-574. Although the headings L040-050 seem to correspond with Dewey's 310, Statistics, they do not really do so. Brown's headings are for Population returns only, and General Statistics are regarded as part of Generalia, at A460. *Special Statistics* in both schemes go at the special subject.

155. On the other hand, the class includes Numismatics, because of its close relation to money, at L895, a division which in Dewey is 737, under the Sculpture division of Fine Arts (and must not in that scheme be put at 332.4, which takes only coins in currency, their standards, comparative values, and entirely ignores the antiquarian, artistic, or curious discussion of them).

156. Beyond these points, although the order is different, the compass of the class in both systems is the same. It is important that the student should understand thoroughly the connotation of the main divisions of this class. For example, that Political Economy and Political Science are not the same subject. That

(1) *Political Economy* deals with wealth, its production and distribution (not simply as money which is merely machinery) but as labour, commodities, etc., and the circumstances in which these operate.

(2) *Political Science* deals with government in all its forms, and the administration of government, by monarchs, parliaments, and departments of

state, and the machinery—local government, law, police, and money—by which these operate.

Be sure all through the class that the terms are completely understood.

157. READINGS.

BROWN. *Subject Classification*, pages 26–32 (pars. 29–43)

This is valuable as explaining some of the more important auxiliaries of notation.

A comparative reading of Class L in the Subject Classification.

Learn L₀–L₉ on page 81.

Read with care the first two of the series of articles by J. D. Brown, "The Subject Classification: Criticisms, Revisions, and Adjustments," in *The Library World*, vol. 12, pages 41, 81 (July–June, 1909–10).

DEWEY. *Decimal Classification*, page 38 to end of Introduction.

Read Main Tables 300–399.

Learn 300–390 of Second Summary.

158. QUESTIONS.

(1) Contrast briefly the treatment of Social and Political Science in the two schemes, Dewey and Brown.

(2) Classify by Dewey and Brown (with categorical numbers for the latter) :—

1. LEWIS AND BARROW. *Prevention of Cruelty to Children.*
2. LIGHTWOOD. *Treatise on the Possession of Land.*
3. LEGGETT. *Treatise on Law of Bills of Lading.*
4. LEE. *Law of British Shipping.*
5. LEES. *Constable's Pocket Book.*
6. FROEBEL. *Education of Man.*
7. LILLY AND WALLIS. *Law affecting Catholics.*

8. LOWNDES. *Law of Marine Insurance.*
9. LITTLE. *Law of Burial.*
10. LITHIBY. *District and Parish Councils.*
11. MACGILLIVRAY. *On Copyright.*
12. LUSH. *Married Women : in relation to Contract, Torts, and Trusts.*
13. MACMAHON. *Law of Licensing.*
14. MACSWINNEY. *Law of Mines.*
15. MOORE. *History and Law of Fisheries.*
16. MOYLE. *Imperatoris Justiniani Institutiones.*
17. ODGER. *Local Government.*
18. OKE. *Game Laws.*
19. NICOLAS. *Formation of Companies.*
20. *Notable Scottish Trials.*

(3) Classify by both schemes :

1. JEVONS. *Principles of Science.*
2. STEWART. *Sheaf Catalogue.*
3. WRIGHT. *English Dialect Dictionary.*
4. SEELEY. *Ecce Homo.*
5. WILDE. *De Profundis.*
6. *Connoisseur* (journal).
7. *Report on Census, 1910.*
8. STONE. *Justice's Manual.*
9. BRYCE. *American Commonwealth.*
10. BAGEHOT. *Physics and Politics.*
11. ——— *English Constitution.*
12. PANKHURST. *Suffragette.*
13. GREGORY. *Mabinogion.*
14. *High History of the Holy Grail.*
15. LEMPRIERE. *Dictionary of Classical Mythology.*
16. LONG. *Railway Boards and Directorates.*
17. WILLIAMS. *Before the Bridge on a Liner.*
18. JONES. *Sections of a Submarine Described.*
19. MAHAN. *Influence of Naval Power on the French Revolution.*

20. *Report of Poor Law Commissioners.*
21. *Report of Road Board.*
22. BAGEHOT. *Lombard Street.*

(4) Classify by both schemes :

1. GIFFEN. *The Case against Bimetallism.*
2. SMITH. *Wealth of Nations.*
3. MALTHUS. *Principles of Population.*
4. MAINE. *Ancient Law.*
5. HUMPHREY. *Coin Collector's Manual.*
6. MACLEOD. *History of Banks and Banking.*
7. MELVILLE. *History of Postage Stamps.*
8. MOSES. *Federal Constitution of Switzerland.*
9. MORLEY (Ed.). *Ideal Commonwealths.*
10. JEVONS. *Money and the Mechanism of Exchange.*
11. ROBINSON. *Improvement of Towns and Cities.*
12. ROSS. *Problem of National Defence.*
13. SCOTT. *Constitution and Finance of English, Scottish, and Irish Joint Stock Companies to 1720.*
14. LOWE. *Some Problems of Geodynamics.* |
15. MARRIOTT. *Second Chambers.*
16. SMALL. *Introduction to the Study of Society.*
17. CROMER. *Ancient and Modern Imperialism.*
18. BASTABLE. *Public Finance.*
19. BIRCH. *The Domesday Book.*
20. AVENIL. *Les Riches depuis Sept Cent Ans.*

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your text-books.

“ Explain the hierarchy of a classification schedule, defining the steps by which it divides, and the necessity for mutual exclusiveness in class, division, subdivision, and section.”

CHAPTER XIX

LITERATURE AND PHILOLOGY

159. THE consideration together of these two classes is justified by their relationship ; they are cognates—language is the raw material of literature—although this is not recognised by the Decimal Classification.

160. In the Subject Classification, class M is homogeneous, commencing first (M000–M019) with the constituents of words ; proceeding to actual words and their functions (Grammar, Lexicography, Names, M020–M091) ; then to words in relation to other words (authorship in its various methods, forms, and restrictions, M100–M134) ; then to methods of registering literature (cataloguing and indexing, M150–M162) ; and then to spoken literature (M170–M186).

161. The class then develops language and literary history (both forms being placed together at one number) in ethnological division, in this order : African, Asian, Aryan, Turanian, Malayo-Polynesian, and European, with their subdivisions. Then the non-ethnic languages : universal and deaf and dumb languages. After these follow the methods of recording language and speech by writing in its various forms (M700–M751) ; then the science of books, their production, conservation,

and distribution. (Book-collecting, printing, paper-making, bookbinding, and library methodology, M760-M995.)

162. This treatment of language and the history of literature in its abstract and concrete forms is followed by a most important subsidiary class N, which deals with actual Literary Texts, and this must be studied with care, as most students misunderstand its meaning. Confusion arises because students place fictional works of single authors under the *general form divisions*, Romances, Novels, Tales, Juvenile, Fairy Stories, etc., when they should go under Individual Authors, N020; or single poems or works of a single poet under headings, N100-N134, instead of N150; and similar confusion is often made of the functions of N200-N249, and N300-N302. Remember most carefully that N000-N008, N100-N134, N200-N249, and N300-N302 are for collections of works in these forms from various writers, and not for works by a single author. Thus Palgrave's *Golden Treasury of the Best Songs and Lyrics in the English Language* is N114, while Shelley's *Lyrical Poems* is N150; Haller's *Selections from Greek Tragedy* is N210, while Sophocles' *Dramas* are N250; Lucas' *Essays of the Seventeenth and Eighteenth-Century Writers* is N302, while Lamb's *Essays of Elia* is N305. Works by individual novelists, poets, dramatists, or essayists go under their respective numbers (N020, N150, N250, or N305) with the number from the biographical table at the end of the main tables; the whole number being written as a fraction.

Thus for Shelley's *Lyrical Poems* the number is

$$\frac{N150}{7861}$$

Note that the important difference between Brown and Dewey is that the latter groups literary material by language, while Brown in these forms ignores it, arranging irrespective of language all works in the respective forms of fiction, poems, dramas, essays, etc. (although the groups *may* be individualised by the geographical number for countries from class O300-W953).

163. The Philology class in the Decimal Classification is a most unsatisfactory class in several ways ; it is mainly European, and other languages are given scanty accommodation. It groups thus :

Comparative philology.

English philology.

European major languages.

German, French, Italian, Spanish, Latin, Greek,
and their dialects.

Minor languages.

English philology is worked out in full, and all other languages may be divided the same way. Thus 426·8 is textbooks for writing English verse, and 436·8 textbooks for writing German verse ; while 491·768 would be textbooks for writing Russian verse, and so on. *The divisions 490-499 are used for 890-899 ; this is most important ;* but do not confuse these divisions with the divisions of 420 just cited. The divisions of 490-499 are ethnic.

164. The classification of Literary Forms and Texts in the Subject Classification is by—

(a) Form.

(b) Alphabetical by authors.

That of the class Literature, 800, in the Decimal system is—

(a) Language.

(b) Form.

(c) Chronological by authors.

Consequently, in the latter system American literature is a group by itself, divided into poetry, drama, fiction, essays, oratory, letters, humour, and miscellany; English literature is a group divided similarly, and so for all other literatures.

One emphatic rule prevails: *works about works are classed with the works.* (This applies to both systems, and is an almost universal rule.) Hence in Dewey Bradley's *Shakespearean Tragedy*, Shakespeare's *Dramas*, and Lamb's *Tales from Shakespeare* all go in 822.33.

165. The division 890 is the only one likely to trouble the student, but the matter is simple when once understood. The division is the same as the philology division at 490. Persian literature, for example, takes the same number as Persian Philology 491.55, except that 8 is substituted for the initial 4; Keltic Literature is 891.6, Russian 891.7.

166. Before leaving literature, we must notice the power of geographical division permitted by the Subject Classification in this class. Except in local buildings, streets, and monuments, all subjects that have a special local, or national, or place bearing, are arranged under their subject and divided by

their place number. Thus in Literature, a work on *Greek* drama would classify at N202 with the geographical number for Greece, Q300, added. It is usually only necessary to give the first figure after the letter of the geographical number ; and thus our work would be numbered N202Q3.

167. Note carefully the following important practical decisions made by Brown in the Subject Classification M-N :

(a) Literary style takes composition number if general ; and language number plus categorical number if special.

(b) All the headings and sub-headings in the form classes are to take commentary and history, etc., as well as texts.

(c) Histories of poetry, drama, etc., to take the general heading, plus national number, plus ·10.

(d) Histories of *special* forms, however, to take the special number.

(e) Ordinary children's poetry takes ordinary poetry numbers, not N132.

(f) In the classes where books are classified by *form*, form is paramount to subject, e.g. Anthology of poems relating to Oxford to be classed with English poetic anthologies, N102V5.

(g) Literary landmarks go under X.

168. READINGS.

With a view to Test Examination I., revise the readings already given, Lessons I.-IV.

BROWN. *Subject Classification*, pages 32-4 (pars. 43-6).

Read classes M-N.

Learn M0-N3 on pages 81-2.

DEWEY. *Decimal Classification.*

Read Main Tables 400 and 800 ; the reading to be comparative as usual, and particular attention to be devoted to the notes.

Learn 400-490 and 800-890 of Second Summary.

169. QUESTIONS.

(1) Discuss the relative advantages and disadvantages of ethnic and language divisions in Language and Literature, as compared with the method of arranging all one form of literature together, irrespective of either. Illustrate your argument from the two classifications.

(2) Make a Decimal Classification schedule of Medo-Persian Literature, showing, all *forms* of literature.

(3) Classify by Dewey and Brown :—

1. GOETHE. *Faust.*
2. OMAR KHAYYAM. *Rubiayat.*
3. *The Love Letters of the Brownings.*
4. STEVENSON. *Child's Garden of Verses.*
5. SAINTSBURY. *Specimens of English Prose.*
6. SWINBURNE. *Study of Ben Jonson.*
7. MUSSET. *On ne Badine pas avec l'Amour.*
8. MEREDITH. *Egoist.*
9. JONES. *Theory of Tragedy.*
10. ADDISON. *Essays from "The Spectator."*
11. FOVARGUE. *Manual of Library Law.*
12. QUINTILLIAN. *Institutes of Oratory.*

(4) Classify by Dewey and Brown :

1. ELWES. *Dictionary of the Portuguese Language.*
2. HODGSON. *Errors in the Use of English.*
3. DOWDEN. *History of French Literature.*
4. PAPHILLON. *A Manual of Comparative Philology as applied to the Illustration of Greek and Latin Inflections.*

5. CARTWRIGHT. *Elementary Handbook of the Siamese Language.*
6. ROBERTS. *Zulu-Kaffir Language.*

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your textbooks :

“ Define critical classification, its cause and effect ; and give examples, imaginary or otherwise, drawn from bibliographical classification, to illustrate your meaning.”

CHAPTER XX

TEST EXAMINATION—I

170. THE student should not refer to his notes, or consult any textbook of classification, before answering the questions. In classifying the titles the Indexes of Dewey and Brown should not be used.

(1) Demonstrate from the primary divisions of Botany the fundamental rules of classification.

(2) Illustrate by examples the use of mnemonics in classification.

(3) How does the treatment of the Form Classes in Brown differ from that in Dewey ?

(4) Construct a brief classification scheme for the arrangement of books, prints, and broadsides dealing with a single town ; use a decimal notation ; provide form divisions ; and index the first few headings of the scheme. Preface the scheme with an explanation of its application.

(5) Classify the articles in the current *Nineteenth Century and After*, by Dewey and Brown.

(6) Classify by Dewey and Brown :

1. FORESTER. *The Law of Liberty : an outline of Bible study based upon Philemon and other New Testament writings.*

2. *Catholic Directory.*

3. *Hail Brigit : an old Irish poem on the Hill of Alenn.* Trans. and edit. by K. MEYER.

4. *Iliad Pocket Book : cameos of life in the Homeric Age.*
5. *The Geographical Journal.*
6. GUERBER. *Myths and Legends of the Middle Ages.*
7. SCOTT. *Increasing Human Efficiency in Business : a contribution to the psychology of business.*
8. *The Historical Record of the Coronation.*
9. BERGSON. *Laughter : an essay on the meaning of the comic.*
10. BROWNLOW. *Women's Work in Local Government in England and Wales.*
11. *Post Office London Directory.*
12. HARRIS. *New Odes of Solomon.*

CHAPTER XXI

SCIENCE

171. THE Classification schemes we are studying differ very widely as we approach Natural Science, and in a manner difficult to explain briefly. It is here that the student must place the two schemes side by side and trace the divergences and endeavour to discover the reason for them.

172. The Decimal Classification divides into :

General Science,
Mathematical Sciences,
Physical Sciences,
Natural Sciences,

the order in general being evolutionary.

The student will find it a simple class to apply if he familiarizes himself with the terminology of the scheme, especially in the divisions of Chemistry, and Biology, with its subdivisions Botany and Zoology.

173. The seventh and later editions of Dewey have considerably expanded tables, and the student who has access to them would do well to study these.

174. The historic or generic order adopted in the Subject system that places "each subject as near as possible to the science on which it is based" somewhat complicates its study for the student who has been trained to think in terms of the Decimal

scheme ; but the arrangement is really very simple. The topics of Science as compared with the Decimal arrangement are to be found as follows :

General Science at A900 in Generalia.

Mathematics at A400 in Generalia.

Physical Science at BC, which is a class of that name with a division Electricity and Magnetism.

Natural Science at D, E, F, and G000-033.

Immediately after each pure science, however, are arranged its applications ; that is to say, Useful Arts (as understood in Dewey) are intercalated between Pure Sciences in Brown. It is one of the principal distinctions between the two schemes that Pure Science (500) and Applied Science (600) are separated classes in Dewey, but are amalgamated, in sequence of development, in Brown.

175. The important thing for the student is to remember the principle just enunciated ; and to learn the terminology of the groups.

176. The following are important practical decisions made by Brown himself on the Subject scheme generally ; they must be studied carefully :

(a) Hunting in special countries, under country with hunting categorical number.

(b) Cookery of a special fruit or vegetable, classify under Cookery : General.

(c) Vegetarian recipes go under Vegetarianism and Cookery.

(d) Fishing—if particular fish and its habits, put under F ; if angling purely under I.

(e) Paleo-Botany of special plants goes with plant.

(f) Fossils of special animals go with animal.

177. *Readings*.—My aim is to produce in the student the habit of mind that enables him to see the perspective of a classification scheme ; that he may be able to place a subject in a scheme in his mind without reference to the tables ; in fact, to see the whole scheme as a mental map before him. In order to do this the student should endeavour to get a sort of “ picture ” of the main headings in his mind ; and I recommend that he glances for a few moments at the main headings in the summaries every day, and tries to visualise them. This will be a valuable *practical study*.

I also want the student to be so equipped that he can discern the order, merits, omissions, etc., of any scheme ; and therefore I want some attention to be paid to practical-theoretical considerations in the remaining lessons.

178. READINGS.

Read for a revision of theory :

SAYERS. *The Grammar of Classification*. Library Assistants' Association Series, 6d. From the Hon. Secretary, L.A.A. (or Grafton & Co.).

This is the briefest conspectus of the subject that has been written, and is deliberately confined to the essential points for students.

BROWN. *Subject Classification*.

Revise the Introduction, pars. 1-39.

Read classes A400, A900, B-C-D-E-F and G000-033.

Compare with Dewey very carefully.

Learn O-P on page 82.

Read "The Subject Classification: Criticisms, Revisions, and Adjustments, III.-IV., in *The Library World*, Vol. 12, pages 121, 153 (July-June 1909-10).

DEWEY. *Decimal classification.*

Read Main Tables 500-599.

Learn 500-590 of Second Summary.

179. QUESTIONS.

(1) Explain, with four examples, the principle of the Subject Classification that "each subject is placed as near as possible to the science on which it is based."

(2) Summarize in three pages all the principles enunciated in pars. 1-15 of Brown's Introduction.

(3) Classify by Dewey and Brown:—

1. PROCTOR. *Stars in their Seasons: twelve maps of the heavens at any hour of night all the year.*
2. ARRHENIUS. *Life of the Universe: the historical development of cosmogonic ideas from ancient days to the time of Newton.*
3. FORSYTH. *A Treatise on Differential Equations.*
4. FLOWER. *Essays on Museums.*
5. HUMBOLDT. *Cosmos: a sketch of a physical description of the universe.*
6. HULL. *Treatise on the Building and Ornamental Stones of Great Britain and Foreign Countries; arranged according to their geological distribution and mineral character.*
7. ROTCH. *Sounding the Ocean of Air: the exploration of the upper air by means of clouds, balloons, and kites.*
8. FRIEND. *Theory of Valency: or, definite atomic attractive force.*

9. THOMPSON. *Roentgen Rays, and Phenomena of Anode and Cathode.*
 10. GEIKIE. *The Foundation of Microscopic Petrography.*
 11. MILNE. *Seismology.*
 12. DARWIN. *The Foundations of the Origin of Species : two essays.*
- (4) Classify by both schemes :—
1. TYNDALL. *Forms of Water in Clouds and Rivers, Ice and Glaciers.*
 2. WOODWARD. *Geology of Water Supply.*
 3. GORE. *Art of Scientific Discovery.*
 4. DAWSON. *Fossil Men and their Modern Representatives.*
 5. CONN. *Story of Life's Mechanism : the conclusion of modern biology in regard to the mechanism of living activity.*
 6. LOCK. *Recent Progress in the Study of Variation, Heredity, and Evolution.*
 7. PRINGLE. *Practical Photo-Micrography.*
 8. JEFFERIES. *Nature near London.*
 9. WHITE. *Natural History of Selborne.*
 10. WARMING AND VAHL. *Oecology of Plants : and introduction to the study of plant communities.*
 11. HEATH. *The Fern Paradise.*
 12. PAGET. *Experiments on Animals.*
 13. KEW. *The Dispersal of Shells : means of dispersal possessed by fresh-water and land mollusca.*
 14. STAVELY. *British Spiders.*

(5) In order to make a Bibliographical System practical, it must be equipped with certain auxiliaries. Examine this statement, using the auxiliaries of the Decimal, Expansive, and Subject systems to explain your meaning.

CHAPTER XXII

USEFUL (OR PRACTICAL) ARTS

180. WE see in our consideration of Useful Arts the wide divergence between the order of the Dewey and Brown Classifications. Dewey divorces theory (Science) from practice (Applied Science); Brown places them in juxtaposition. In the Brown Classification the student will have very little difficulty in locating a subject in Useful Arts; the "root science" has only to be recognised, and after that the finding of the required number is an easy matter.

181. In the Decimal scheme, 600, Useful Arts, is a heterogeneous class which divides broadly as follows:

The Human Body, its construction, diseases, treatment, etc.

Engineering in all its practical applications.

Agriculture, including domestic gardening; and fishing and trapping (where these are for food or practical purposes, and *not* for sport—in the latter case they are Recreative Arts).

Domestic economy, including the house, its heating, lighting, etc., furniture, and sanitation (but not plumbing or lighting as trades, which have other places in the same class), clothing, food, and home nursing (not medical nursing, which is 610·73).

Communication and commerce, on the practical side, office methods, telegraphy, book-keeping, accounts, etc. (The economic side is 380.)

Chemical technology, or practical applications of chemistry to manufacture.

Metallurgy.

Manufactures.

Trades.

Building (including shipbuilding).

Be very careful to read all notes in the class ; that under 670 is very important. Note that the whole section is practical ; Electricity, as a science, is 537 ; its application by the electrical engineer is 621.3. Building is the actual work of raising the structure ; not its planning or description, which is 720. Note, too, the difference between 625, which is the *construction* of railways, 656, which is the *working* of them, and 385, which deals with their *government, economic value and business administration*.

Examples of books :

625 Laying a Permanent Way.

656 A Year's Engine Driving.

385 Nationalization of Railways.

The class is full of similar points ; and we can only repeat the rule that *Practical aspects only of a subject are put in 600*.

182. In the Subject scheme we have to think in terms different from those prevailing in Useful Arts in the Decimal scheme. The subjects are to be found in classes B-I, and the section C000-070 is typical of the arrangement throughout. Here we commence with the pure sciences of electricity, electro-dynamics, statics, kinetics, etc., and pass through magnetism directly to the practical application at C050, Electrical Engineering. Whatever

may be urged for or against this order, it is simple and direct. Returning to our examples, we see what is meant by the juxtaposition of topics.

- B502 Laying a Permanent Way.
- B198 A Year's Engine Driving.
- B531 Nationalization of Railways.

Certainly there is separation, but not such as we have in Dewey.

183. The following are important practical decisions made by Brown on the Subject scheme: they must be studied carefully:

- (a) B204 to include *Coast Erosion*.
- (b) University Calendars to have the University number, subdivided by locality, plus .23, e.g. Oxford University Calendar, A180U726.23.
- (c) A690 (Industrial Decoration) includes Ship-painting.
- (d) General books on *Arts and Crafts* are A690.
- (e) Alphabets for sign-painters, etc., are M011 plus categorical number.
- (f) Electric bells are C739.226; electric meters, C056.167.

184. READINGS.

BROWN. *Subject Classification*.

Revise Introduction, pars. 40-46. Par. 46 is very important in arranging an individual author—especially in a catalogue.

Go through Main Classes B-119, and observe carefully how applications of science spring from the science.

Learn Q-R on page 82.

DEWEY. *Decimal Classification.*

Read Main Classes 600-699, making careful comparison with the Subject arrangement of the same subjects.

Learn 600-690 of Second Summary.

185. QUESTIONS.

(1) What is meant by the statement that Dewey divorces theory from practice in 500 and 600? How does this treatment compare with that in the Brown scheme?

(2) Summarize in three pages pars. 16-29 of the Introduction to the Subject scheme.

(3) Classify the articles in this month's "Nineteenth Century and After" by both schemes.

(4) Classify by both schemes:

1. FLETCHER. *Dilapidations: a textbook for architects and surveyors in tabulated forms.*
2. CRANE. *Smithy and Forge: including instructions in the farrier's art.*
3. SINDALL. *Manufacture of Paper.*
4. EISSLER. *The Hydro-Metallurgy of Copper: treatment of cupriferous ores, including the manufacture of vitriol.*
5. ANDES. *Vegetable Fats and Oils: for oil Manufacturers, candle, soap, and lubricating oil manufacturers.*
6. SEELEY. *Factors in Life: three lessons on health, food, and education.*
7. MEYER. *Organs of Speech and their Application in the Formation of Articulate Sounds.*
8. BALE. *Woodworking Machinery: use, progress, and construction.*
9. BOTTONNE. *Electric Bell Fitting.*

10. THOMPSON. *Elementary Lessons in Electricity and Magnetism.*
11. LODEMAN. *Spraying of Plants: history, principles, and practice of the application of liquids and powders to plants for destroying insects and fungi.*
12. DICKSEE. *Hotel Accounts.*
13. BOLAND. *Century Invalid Cookery Book for Nurses.*
14. REES. *The Grocery Trade: its history and romance.*
15. WHITE. *Basket-Making at Home.*

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your textbooks:

“What are the qualities required in a sound notation? Give examples of ‘mixed’ and ‘pure’ notations respectively, and of one in which arbitrary signs are used. Explain also the auxiliaries of notation, and especially the applications of those devised by Biscoe, Cutter, Jast, and Merrill, and Stewart’s adaptation of the last named.”

CHAPTER XXIII

FINE AND RECREATIVE ARTS

186. IN Fine Arts, as seen in the two classification schemes, we have some most interesting divergences. Roughly it may be said that Dewey regards Fine Arts as higher developments of Useful Arts. Brown, on the other hand, urges that some are higher developments, but that all do not spring from previous forms, as some pervade all classes. The view is open to discussion, but that is no part of our purpose.

187. The Subject scheme presents most difficulties, and we will consider it first. Pictorial and Plastic Arts (painting, engraving, sculpture, etc.) are considered pervasive of the whole of knowledge and are placed in A ; Architecture, as an application of Physical Science, is placed in B300-490 (note that this schedule takes building, architectural, practical, and historical : they are not separated as in Dewey, 690 and 720) ; Landscape Gardening is part of the general subject of Gardening in Economic Biology, I220-I265 ; Photography is one of the Graphic and Plastic Arts in A735-788 ; Music, in all its forms (very elaborately and excellently worked out) is a development of Acoustics in Physical Science, C300-796 ; Theatrical performance goes with the general subject of the Drama in Literary Forms and

Texts, N200-N249; Recreations are a part of Ethnological and Medical Science, H700-991.

Thus we see an entirely different principle governing the order from that ruling in Dewey. We have again to point out that, as every one of the Useful Arts must be sought for at the Science on which it is based, so must each of the Fine Arts be sought at its basic Science.

188. The Decimal treatment of Fine and Recreative Arts need not detain us long. It deals with the beautifying of the plane in Landscape Gardening, which must only take gardening for the pleasure of the eye and mind, not for producing food; the beautifying of the solid in Architecture; Sculpture (730) which, it must be noted, includes ceramics, coins, engraved gems (not precious stones in the natural state, which are 553·8) and bric-a-brac; Drawing, Decoration and Design in which the headings most carefully to be noted are Art Needlework (the artistic side of the subject only; domestic needlework and dressmaking are 646) and Artistic Furniture (which must not be confused with furniture-making, 684). 750 is an important division. The heads 750-758 must be regarded as dealing with the subjects named; that is to say, a book on landscape painting in theory, in history, or in any other aspect, is 758, while a discussion of the works of an individual landscape painter goes in 759 with the national division number. The other headings are simple. It may be remarked *en passant* that 770 is hopelessly obsolete and needs expansion for modern use, and that 790 is a confused arrangement,

the absurdity of which is best seen at 797 where a number of unrelated games are jumbled together because a "ball" is used in them.

189. READINGS.

BROWN. *Subject Classification*.

Look up the references in the Introduction to the pervasive nature of Fine Arts.

Read A600-831 ; B300-490 ; C400-796 ; H720-991.

Learn S-T on page 82.

DEWEY. *Decimal Classification*.

Read Main Classes, 700-799.

Learn 700-790 of Second Summary.

HULME. "Principles of Book Classification," in *L. A. Record*. Vols. 13-14.

These brilliant articles should be read with critical care. Some critics think that the author is wrong in divorcing philosophical classification from bibliographical, but his work is nevertheless full of suggestion for the advanced student of classification. (See Appendix I.)

Revise your theory regularly now. There may be questions in the Examinations on the schemes of Cutter, Fletcher, Edwards, British Museum, Library of Congress, or Brussels Expansion of Dewey. Cutter is the most important. (See chapter iv. of my *Canons of Classification*.)

190. QUESTIONS.

(1) Classify by both schemes :

1. RUSKIN. *Ariadne Florentina: six lectures on wood and metal engraving*.
2. BOSANQUET. *History of Æsthetic*.

3. ELLIS. *Elgin and Phigaleian Marbles of the Classical Ages in the British Museum.*
4. MIDDLEMORE. *Great Age of Italian Painting.*
5. DU CANE. *The Flowers and Gardens of Japan.*
6. ABNEY. *Evening Talks at the Camera Club on the Action of Light in Photography.*
7. PARKER. *A B C of Gothic Architecture.*
8. LUCAS. *What Shall We Do Now : suggestions for children's games and employments.*
9. MORTON. *Art of Theatrical Make-Up.*
10. MATHAY. *Art of Touch in All Its Diversity : an analysis and synthesis of pianoforte tone-production.*
11. ELLIS. *Pronunciation for Singers : with especial reference to the English, German, Italian, and French languages.*
12. WHYMPER. *Scrambles in the Alps.*

(2) Classify by both schemes :

1. LONGMAN AND LOCH. *Pins and Pincushions : the history, folklore, and use of pins in all ages.*
2. MAETERLINCK. *Death.*
3. MELVILLE. *Chats on Postage Stamps.*
4. CATTELLE. *The Diamond : its nature, working, trade, and mines.*
5. SORLEY. *The Moral Life and Moral Worth.*
6. *The Boy Scouts' Complete Signalling Instructor.*
7. MATTHEWS. *The Highlands of South-West Surrey : a geographical study in sand and clay.*
8. HARPER. *The Holyhead Road : the mail coach road to Dublin.*
9. REYNOLDS. *Seems So : a working-class view of politics.*

(3) Summarise in less than 500 words the eleven rules for "Assigning Class Numbers," (Dewey's Introduction).

(4) State the arguments for and against placing Pictorial and Plastic Arts in Generalia ; then defend the placing of them there.

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your textbooks :

“ The Subject system has a specific index ; the Decimal and Expansive systems have relative indexes. Explain and examine the functions of each form, exhibiting in your answer what you conceive to be the correct method of approaching a classification scheme in classifying a book.”

CHAPTER XXIV

HISTORY AND ITS COLLATERALS

191. WE now approach what should be the simplest class in classification, but one in which, curiously enough, practical experience proves that the average student makes many mistakes. A typical error is that of confusing travel with history; an indefensible error from an examination point of view, but one which appears in every second set of answers by students. We shall first analyse the Decimal class 900, and endeavour to provide some working definitions to prevent this and similar errors.

192. Dewey's 900 is the most burdened of all his classes; it embraces:

- | | |
|--------|---|
| 900 | The generalia of history. (Note carefully that this excludes the generalia of Travel or Biography.) |
| 910 | Geography and Travels, for which a more suitable and comprehensive name would be "Description." |
| 920 | Biography. |
| 929 | Genealogy and Heraldry. |
| 930 | Ancient History. |
| 940-99 | Modern History. |

This is a wide field, and is a perfectly simple one if the following principles are clearly understood:

(1) Geography and Travels is a class embracing all forms of description of the superficies of a country

as such. It does not deal in any way with the evolution or past of a country. At the same time a description of a journey in a given country *at any time* is a member of this class. The dominant principle is that topography—the country itself—is the arranging characteristic. Hence, *The Animals of South Africa*, or *With Flashlight and Rifle*, or Darwin's *Naturalist's Voyage* are *not* to be admitted to this class (although in the catalogue a cross-reference may be made from the localities of which these works—which themselves belong to Natural Science—treat). If a work treats of any subject—say, sport, science, statistics, government, etc.—*as it occurs in a single country or group of countries*, it goes under the subject, not under the country; but, in the catalogue, it may be collected at the country by cross-references, if it is desired to show the country from all these aspects.

The notes under 910–919 are of great importance, and unless they are understood mistakes will occur. The class includes *antiquities, maps, directories, guide books, etc.* Antiquities is difficult to justify in travel, except on the ground already laid down that “the superficies of countries” are the main factor in this class. All the divisions, 910–919, are to be subdivided as 940–999; be quite clear about this. All you have to do in applying the notation to works of description is to use the history tables (940–999), *insert 1 after the initial 9, and move the decimal point one place to the left.* Thus,

942·1 History of London.

914·21 Guides, Topography, Description, of London.

We repeat that if this is not understood, the student cannot hope to use the scheme ; but, after all, the wonder is that so many *do* misunderstand !

(2) 920 is quite simple again. The term Biography includes autobiography, diaries, eulogies, reminiscences (when general,) *but not letters* (which go in their various language divisions in 800). The main characteristic of the order is "the subject the biographee illustrates." In the tables numbers are assigned as far as the main classes, but each of these may be divided by adding the actual subject number from the appropriate part of the classification. Thus, *The Life of Darwin* illustrates Evolution (or, better, Biology). The number here given is 925 "Individual and Collective Biography of Science." Now turn up Biology, 570 ; drop the 0 (for here it is meaningless), and the 5 (science) which is already expressed in the number 925, and add the 7 after a point ; hence the number for *The Life of Darwin* is 925·7. You will note that the numbers in 921-928 are simply 92 and the initial figure of the Main Classes ; hence 921 Philosophy, 922 Religion, etc. The *generalia division* of Biography, 920·01-920·09, is only for collections of lives which do not illustrate a subject. *Lives of Eminent Sailors* clearly goes in 923·59, but *Lives of Eminent Persons* may be 920·01 or (if English) 920·042. The former is limited to a class of persons (sailors) ; the latter is general. Note carefully that "Lives which will not go under any head without 'forcing,' are best put in a single alphabet under the three figures 920 for men, and under 920·7 for women."

An adjustment of Biography made in many libraries is to use 920 and its divisions for *Collective Biography only*, to put Individual Biographies in a class noted B, and to arrange them within it in alphabetical order of the names of the persons biographed.

Another plan, permitted by Dewey (but not altogether satisfactory in a general library), is to number the biography with the subject it illustrates, ignoring 920-928 altogether, and thus to scatter biography throughout the classes.

(3) Ancient History commences with the beginning of time and concludes with the fall of the Western Roman Empire, A.D. 476; Modern History is from A.D. 476, *and the two divisions must not be confused*. If this is remembered, we shall not have students putting *Garibaldi's Defence of Rome* in 937, or *Petrie's History of Egypt* in 962. Be sure of the period a history covers, for the reason given. There is another reason. Dewey uses two methods of division under each principal country, one general, one special or local. The first is the *Period Division*, usually, but not always, introduced by a cypher; the second is the *Local Geographical Division*. The *general* works on English history go in 942; general works which deal predominately with a period of that history go in the appropriate division in 942·01-942·09. Thus Rice Holmes' *Ancient Britain and the Invasions of Julius Cæsar* is 942·01. *But*, a book on *The Roman Period in Kent* must go in the local geographical division of the History of England, under Kent; hence 942·23.

Remember this rule: *Only general works go in period divisions, works dealing with a single locality, however restricted in period, go in geographical divisions.*

The only other hint is that 919.7 and 997 should be used for islands not named elsewhere in the tables, and not clearly forming part of the territory of a single continent or country. It is a number often overlooked, but a necessary one.

193. In several important particulars the Subject Scheme differs from the Decimal in these classes.

194. READINGS.

DEWEY. *Decimal Classification.*

Read Main Classes 900-999, making careful study of each of the notes. Be quite clear as to the scope of each division.

Learn 900-990 of Second Summary.

Read Hawkes, A. J., "Suggestions towards a Constructional Revision of the Dewey Classification" ("Librarian Series"). Atkinson. Also in *The Librarian*, 1911.

In view of lesson ten, read up the Subject Classification main tables as far as the subjects dealt with in the present lesson are concerned.

Read again the article by Jast, "Library Classification," in Greenwood's *British Library Year Book*. 1900-1.

195. QUESTIONS.

(1) To relieve the weight of Dewey's 900, various adjustments have been made. Explain what is meant by "weight of Dewey's 900," and describe and criticise

any adjustments with which you are acquainted. Can you suggest any yourself?

(2) What examples of the "Geographical treatment of subjects" are you able to find in Dewey? What is meant by the statement that "locality is the arranging characteristic, and works on a subject treated locally go with the subject?" Give examples.

(3) Classify the articles in the current "Nineteenth Century and After" by both schemes.

(4) Classify by both schemes with cross-references. The examples illustrate important points:

1. HARRISON. *The History of the Manor House at Guildford.*
2. FITZGERALD. *Boswell's Autobiography.*
3. NEVILL. *Campaigns on the North-West Frontier of India.*
4. WALPOLE. *Letters.*
5. WALLACE. *Malay Archipelago.*
6. *Surrey Parish Registers.*
7. MASSON. *Around St. Helena.*
8. WARREN. *A History of the American Bar.*
9. GARDINER. *History of the Great Civil War.*
10. MUMMERY. *My Climbs in the Alps and the Caucasus.*
11. MOMMSEN. *History of Rome.*
12. BRYCE. *Holy Roman Empire.*
13. PAINE. *Book of Buried Treasure: a true history of the gold, jewels, and plate of pirates, galleons, etc., which are sought for to this day.*

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your textbooks:

"Classify by subject and then by form." Define the terms, and the difference between "outer" and "inner" form, and then explain the statement, with examples.

CHAPTER XXV

HISTORY AND ITS COLLATERALS—*continued*

196. THIS is by far the largest class in the Subject Classification, and employs the letters O—X with a notation extending to nearly 1000 places under each letter. We must turn to the Introduction for some general hints which are of profound importance in this connexion. History “includes civil, *church*, military, and social history, and, *excepting the case of individual churches, all national ecclesiastical histories are assembled at the country to which they relate.*” The provisions we have italicised are peculiar to this scheme; in the Decimal Classification ecclesiastical and church history are arranged at 270–279. The remainder of section 24 of the Introduction must be studied with care.

197. *First general principle.* There is no division between history and geography, as in Dewey. The history and geography of a country go at the same number, but may be differentiated by the categorical number, .10 applied to history, and .33, applied to geography. When this differentiation is made the simple number is used for general works which partake of the nature of both history and geography.

Second general principle. Each country is arranged, as are the divisions 930–990 of Dewey, into Period Divisions and Local Geographical Divisions; and the rules apply to both schemes: that—

(1) General works go at main number of division.

(2) General works *on a period* go at the number of the period.

(3) Works on a locality, from whatever aspect, or upon whatever period, go at the number of the locality.

198. Divisions O000–O282 are the generalia of History and Travel, and works on individual countries, churches, campaigns, or archæology or maps of individual countries *must not go here*, but under their *appropriate countries with categorical numbers*. In the whole class the local number to be preferred whenever possible. The only exception to the general nature of O000–O282 is found at O025–O044, which takes works on certain nations which no longer exist.

199. The outline of the class is simple :

- Universal history and geography.
- Oceania and Asia.
- Europe, General and South.
- Europe, North.
- British Islands.
- America and Polar Regions.

It is remarkable in comparison with other schemes for the ample provision made for the British Islands, and the divisions much-desired in Dewey, United Kingdom and British Empire, are supplied.

200. Note the following decisions made by Brown :

(a) Civilisation, General, to go in O003.

(b) Histories of civilisation in special countries to take country number, plus ·17.

(c) Constitutional histories take L202, with the

national number ; e.g. constitutional history of England L202V5.

(d) Dictionaries of dates in alphabetical order are O000-2. Similar books arranged by dates are O074.

(e) Mountaineering, rock-climbing, etc., go under local number, with categorical number for mountaineering.

(f) Colonies in general are put under L.

(g) Colonies special are put under local number.

(h) Regnal numbers include all members of Royal Families whether reigning or not.

201. Biography is removed bodily from history, and marked X. This divides into :

Collective Biography, universal.

Collective Biography, by subjects.

(This is a division similar to that of Dewey, but in this scheme it is restricted to Collective works.)

Genealogy and Heraldry.

Epitaphs, Family Registers, Portraits, Autographs, etc.

Individual Biography and Letters.

In Individual Biography all works are marked X with the addition of a number from a specially-constructed alphabetical number table. Thus,

The Life of Browning, X3434.

This alphabetical table is also used for marking individual poets, dramatists, novelists, and any other class of works in which alphabetical order is desirable. Another method, approved by the system (and practised by Mr. Brown at Islington) is to ignore the alphabetical number table, to arrange works in which alphabetical order is desired under

the class letter, and to add the three first letters of the author's or biographee's name ; as :

Life of Browning. X_{BRO}.
Collections of letters go at X₀₀₂.

FINAL HINTS AND CONCLUSION

202. The student who has followed this course faithfully has done severe and valuable work, such as has not before been exacted from students in this country ; and he should now be equipped to apply the Decimal or the Subject Classifications to any type of library. It has been impossible to be exhaustive, and your ability to profit by Part III. of this book is dependent upon your knowledge of Parts I.-II. I can only urge the student who has examinations in view to bear in mind the following hints :

(1) To revise the theory of the subject. A quick revision may be made by reading the chapter on Classification in Jevons's *Principles of Science*, my paper on *The Grammar of Classification*, Richardson's *Classification*, and Brown's *Manual of Library Classification*, in this order.

(2) Go through the lessons as a whole and revise the principles and decisions.

(3) Illustrate answers, wherever possible, by examples. *We consider this most important.*

(4) In the essay submitted at the Library Association examination keep the following points clearly in mind :

It is an examination to show your knowledge of *method* rather than to add to the total sum of know-

ledge on the matter. Thus, if you are to prepare a classification scheme, it must show main classes, generalia, subject, and local divisions ; it must have an orthodox notation ; it must possess an index ; it should be set out in summary at the beginning ; and it should be prefaced by an introduction explaining the scheme and how to use it.

(5) In your essay and in your answers, as in your writing everywhere, " be brief, be brief, be not too brief."

203. It only remains for me to wish the student good fortune, not only in his examinations, but also in the future pursuit of this subject, which is the highest art of the librarian.

204. READINGS.

BROWN. *The Subject Classification.*

Read Main Tables O to the end, paying careful attention to the notes.

Re-read the Introduction ; make sure now that you grasp it entirely.

Learn U-X on page 82.

DEWEY. *Decimal Classification.*

Re-read the Introduction.

Be sure in both schemes that you have an adequate idea of the meaning of all terms used in the main classes, and main divisions, and of as many other terms in the tables as you can master.

Look up any articles you can find on the practical guiding of classified libraries.

Revise further any readings in the earlier lessons which you do not remember clearly.

Check your memory to see if you retain the summaries that you were directed to learn.

205. QUESTIONS.

(1) What advantages, practical or theoretical, do you imagine the arrangement of History and Geography in the Subject Classification to have over the arrangement of the same subjects in the Decimal Classification ?

(2) Biography may be arranged in several ways. Explain them.

(3) Classify by Dewey and Brown :

1. STRACHEY. *The Later Letters of Edward Lear.*
2. TURNER. *My Climbing Adventures in Four Continents.*
3. MASSON. *Napoleon and His Coronation.*
4. ESCOTT. *Masters of English Journalism: a Study of Personal Forces.*
5. HULME. *Flags of All the Nations.*
6. RODWAY. *In the Guiana Forest.*
7. BARBER. *British Family Names.*
8. SMYTH. *Madeira Meteorologic: a paper read before the Royal Society of Edinburgh.*
9. CAESAR. *Commentaries on the Gallic War.*
10. COX. *Rambles in Surrey.*
11. TERRY. *Index to the Papers Relating to Scotland described or calendared in the Historical Manuscripts Commission's Reports.*
12. SCHLIEMANN. *Mycenæ: Researches and Discoveries at Mycenæ and Tiryns.*

(4) Describe the classification guides, mechanical and otherwise, you would provide in an open-access library arranged by the Subject Classification.

(5) *Test in Theory.* Answer the following in not more than forty minutes without reference to your textbooks :—

(a) Compare the merits of rigid and relative locations.

(b) Criticise the axiom that it does not matter where a subject appears in a classification so long as it is indexed.

CHAPTER XXVI

TEST EXAMINATION—II

206. The student should not consult his notes or any textbook of classification in answering the questions. In classifying the titles the Indexes of Dewey and Brown must not be used.

(1) How far is a classification of knowledge likely to differ from a classification of books? Give a typical example of each, bringing out the points of difference. "L.A. Exam. Papers," 1908 (7).

(2) In how many sizes would you range a classified library so as to reduce to a minimum the shelf-space required, and how would you differentiate the sizes? *Ibid.* (9).

(3) How would a collection of the words of Folk Songs, with the music of the melodies only, be classified by the Decimal and Subject Systems? *Ibid.*, 1909 (3).

(4) What provision is made in the chief modern schemes of classification for the geographical subdivision of subjects? *Ibid.* (7).

(5) Describe the means provided in the Decimal Expansive, and Subject Classification schemes for obtaining alphabetical and chronological order within the limits of a topic. *Ibid.* (5).

(6) Describe the Tree of Porphyry, and its relation to classification, showing in your answer the

meaning of the terms, extension, intension, connotation, denotation, and correlation.

(7) *Practical*. Classify the following by Dewey and Brown, showing form and geographical divisions where necessary :

1. VOVIKOW. *War and its Alleged Benefits.*
2. BAUM. *Romanesque Architecture in France.*
3. LECKY. *History of European Morals from Augustus to Charlemagne.*
4. CARR. *National Insurance.*
5. STEIN. *Ruins of Desert Cathay: a Personal Narrative of Exploration in Central Asia and Westernmost China.*
6. *Debrett's House of Commons and the Judicial Bench.*
7. EMMETT. *The Eschatological Question in the Gospels: and Other Studies in Recent New Testament Criticism.*
8. AUDSLEY. *Amateur Joinery in the Home.*
9. LONGSTAFF. *Butterfly Hunting in Many Lands.*
10. POWER. *Coalfields and Collieries of Australia.*
11. SOPHOCLES. *Œdipus Rex.*
12. MORLEY. *Life of Gladstone.*

APPENDIX I

ANOTHER VIEW OF THE THEORY OF CLASSIFICATION

IN a series of articles entitled, "The Principles of Classification," which appeared in *The Library Association Record* in 1911-12, Mr. E. Wyndham Hulme propounded views on the theory of classification which differ from those commonly accepted. Their author is a great librarian and his work demands the careful study of all library students. The articles should be read and re-read, but as they are difficult reading, I will endeavour to set out the gist of them as an aid to, not as a substitute for, that reading.

The author bases his position on two postulates:—

1. A book is a concrete inflexible collection of a part or parts of our common stock of knowledge, so complex that in itself it presents a welter of cross-classifications (or, to use the terminology of this book, cross-divisions). It will not, therefore, fit into the framework of a philosophic classification scheme without overlapping in many directions.

2. The order of the sciences, which Dr. E. C. Richardson assumes to be the basis of book-classification, is not a satisfactory basis, because the classifier of the sciences merely arranges ideas in order to reveal their relationship; while the primary purpose of the library classifier is to arrange objects (books) which are not ideas, into convenient groups, i.e., the groups in which readers expect to find them.

Thus classification is merely a means to an end, and the co-ordination of the classes, which is essential in philosophic classification, is in book-classification a quite secondary matter. Book-classification may be defined as "a mechanical time-saving device for the discovering of knowledge in books." It involves four operations :—

1. Definition, or the formulation of class-headings.
2. Registration ; i.e., the mechanical assembling in classes of books in accordance with their definition.
3. Co-ordination, *i.e.*, the tabulation of these headings in an order indicative of some common relationship.
4. Notation, *i.e.*, a shorthand symbolization of the classes locating their relative position in the system without the recital of the class-headings.

As the purpose of book-classification is to save the time of readers, we have to seek for our arranging characteristics the attributes of books most convenient for readers. A compiler of bibliographies, as Professor John Ferguson shows in his *Some Aspects of Bibliography*,¹ can arrange by any or all of some sixteen attributes, for example, by date, place, printer, material, type, size, language, subject, *curiosa*, etc. ; but the library classifier is confined to a few essential attributes of books. These essential attributes are physical and non-physical. By physical we mean the mechanical make-up of the book—its type, illustration, size, etc., and with these the librarian is concerned only with size which is forced upon all shelf classifiers for reasons of economy in shelf space, and with MSS., which because of their special form demand separate classification. He is mainly concerned with non-physical attributes, which may be

¹ Ferguson, John. *Some Aspects of Bibliography*. 1900. Edinburgh : George P. Johnston. (A valuable little pioneer book.)

shown in the order in which they are customarily applied in libraries, in the following tabular statement.

Primary Principles.	$\left\{ \begin{array}{l} \text{Book identification marks } \left\{ \begin{array}{l} \text{Authorship.} \\ \text{Book titles.} \end{array} \right. \\ \text{Topic } \left\{ \begin{array}{l} \text{Subject.} \\ \text{Place in space (Topography).} \\ \text{Place in time (History).} \end{array} \right. \\ \text{Literary form (Poetry-Fiction, etc.).} \\ \text{Language.} \end{array} \right.$
Secondary Principles.	$\left\{ \begin{array}{l} \text{Geographical area.} \\ \text{Period.} \\ \text{Language.} \end{array} \right.$
Formal Principles.	$\left\{ \begin{array}{l} \text{Internal arrangement (systematic-alphabetic,} \\ \quad \text{chronological-tabular, etc.).} \\ \text{Extension of treatment (full, medium, short).} \end{array} \right.$
Final order, or Work-mark	$\left\{ \begin{array}{l} \text{Alphabetical } \left\{ \begin{array}{l} \text{by author.} \\ \text{by title.} \end{array} \right. \\ \text{Chronological } \left\{ \begin{array}{l} \text{by date of accession,} \\ \text{by date of imprint, or} \\ \text{original composition.} \end{array} \right. \end{array} \right.$

The two requirements of library classification are brought out by the above :—1, an arrangement of books by marks to denote their authors or titles ; and, 2, a classification by their dominant characteristic, which is either their subject matter, or, in some cases, their literary form.

The crux of book-classification is the definition of class-headings. These can be drawn up only after a survey of existing literature. This literature is to be plotted according to the subject matter represented in it, and a class-name given to every distinctive group of subject-matter upon which there are books to warrant

the process. The defining of class-headings may, therefore, be described as the plotting of areas of pre-existing literature. A heading is justified when the first distinctive monograph on any subject appears. When, however, we review our headings-list, it will be found that we have obtained a bewildering number of headings which differ imperceptibly or combine unrelated subjects. The classifier must, therefore, have discretion to combine works of slightly different area under a common heading, and also register by additional catalogue entries works containing subject matter the association of which in books is infrequent or accidental. It will be found that this method gives exact classification at the expense of approximately one entry for each work; that the entries under any given definition will be equal; and that class will tend to coincide with shelf-list.

The success of any series of headings may be tested by two questions: 1, Do they provide exact classification for every subject or combination of subjects represented in books? 2. Can such classification be effected by one entry, or a fraction over, for each book? If we have fifty books in the following proportions:—

A Gas-manufacture, distribution and supply	=	45
B Incandescent lighting with gas and oil	=	5

If no separate heading is made for B the reader has to look through fifty books in order to find the five on incandescent lighting, and if the proportion of B to A is as one to five hundred there is a danger that he will abandon the search before he discovers his book. There is, therefore, a warrant for a heading immediately that the first monograph appears on a sufficiently distinctive subject as we have already indicated. When we have to define a series of classes combining common subject

in varying proportions we must make our definition according to what is the customary appearance of the subject in literature; *i.e.*, according to the order in which the reader expects to find it.

All logical classifications use consistent characteristics, but in book-classification this is impossible, as the composition of the classes of books is practically settled beforehand by authors and publishers. But if we cannot be philosophical, we can be methodical, and endeavour to arrive at some form of co-ordination. What arrangement will best conduce to the discovery of knowledge in books? The only answer is an arrangement in the order of their common subject-matter. Class definitions are definitions of specific areas of literary matter. Classes allied by common subject matter must be one of two kinds:—(1) Show one area included in the other, or (2) Show two areas intersecting one another at given points and thus at those points enclosing a common space. In the first case we have something resembling genus and species, in which a generic class heading is a collective term for a number of sub-classes or divisions; thus Graphic Arts is a generic term covering Arts of Writing, Engraving, Lithography and Printing; but a specific class in literature is not confined to a single generic class; it is often a strand in the fabric of many classes. Hence co-ordination by a selected property means distribution in respect of other properties, the distributed properties being shown by catalogue references. Co-ordination begins by plotting the specific classes under their generic heading, as

Physics,
Light,
Sound,
Heat, etc.

but this can only be done finally when the classifier is

able to state the full pedigree of the classes concerned and to give a reason for his order. If he can do this his classes will be based on the literary warrant for each of them. But even when he has built up his schedule thus, he will frequently find that instead of being able to proceed to fresh topics, "or at least to deal with a few miscellaneous headings, he has to face a series of classifications of the same data from different stand-points. These cross-classifications, which in a logical scheme are an impossibility, in literature are the rule rather than the exception."

While co-ordination by common-subject matter may be preferred, it is not the only principle that may be employed. Some rational order can generally be affirmed in classes with many sub-classes; as, for example, in the mineral industries which can of course be arranged alphabetically, but for which an order showing real affinities without detracting from its value as an instrument of research may be preferred. Thus:

Mineral industries.		Mineral industries.
Alum.		Alum.
Asbestos.	or	Borax.
Borax, (etc.,		Salt, etc.
alphabetically).		Asbestos.
		Gypsum, etc.
		Precious stones (etc.,
		rationally).

It must be remembered, however, that the insertion of lengthy schemes borrowed from the classification of natural science is to be avoided except in as far as books warrant it. All such schemes should be pruned of groups not represented in book form and a partial alphabetical arrangement substituted.

The above is a brief, and, as I am painfully aware, inadequate summary of Mr. Hulme's thought-provoking papers. Even if we cannot accept his whole contention, we must be aware that Mr. Hulme has advanced our study considerably and has thrown new light upon it. I hope, therefore, that the student will now go on to the papers themselves and form his own conclusions.

APPENDIX II

THE LIBRARY ASSOCIATION EXAMINATION IN CLASSIFICATION

IT will be useful if the reader who anticipates becoming a candidate for the certificate of the Library Association Examination in Classification, which is held each year in May, uses the questions subjoined as touchstones of his study. The questions are drawn from a collation of those asked at the successive examinations from 1906 to 1916. It is admitted that the theory of classification is a limited subject, and that the examiners experience some difficulty in ringing the changes year after year upon some dozen or less phases of it. Questions, therefore, which are the same but are disguised by phrasing have been omitted.

The examination has three parts :—

1. An Essay on some subject bearing upon classification, such as the construction of a scheme, a critical appraisal of an existing scheme or some part of it, or some other topic dealing with the theory or application of classification. The essay is written at home prior to the examination and is a sort of thesis of admission to it. The length of the essay is fixed at 3000 words, but the examiners usually exercise judgment in accepting a longer or shorter essay if the subject warrants it ; this, however, is the length specified. The subject is usually announced in January.

2. A Theoretical Paper (three hours). We have found the following hints of service to students in answering this paper :—

(1) A choice is usually given of six questions out of twelve set. Do not answer more than the number required ; the words “ not more than six questions are to be attempted ” must be interpreted literally.

(2) Avoid the extremes of brevity and prolixity. Leave out extraneous matter (i.e. do not attempt to *teach* the examiners), and, above all, omit redundant words. Experience shows that much irritation is caused by wordiness ; be clear, concise, and to the point.

(3) The form of a proposition in Euclid is a good one to follow in examination answers. Begin with a definition, then add a demonstration (this involves examples ; illustrate everything that admits of illustration), and conclude with an explanation.

(4) Be careful in writing, composition, and punctuation.

A question on the terms used in various branches of classification is usually asked ; i.e. students are asked to define such words as Arminianism, Astrophysics, Quietism, Ratiocination, etc. These terms are chosen from all parts of the schemes, but the majority of difficult ones are in Philosophy, Religion, and Science. Students should look up these sections in the various schemes, make lists of terms he does not understand, and learn about six each day during his study. Care should be taken to use a good dictionary in order that the exact meaning of the terms may be understood—the meaning of many terms varies considerably. The correct meanings may be assured if the student bears in mind the meaning of the main classes in which the terms appear.

3. A Practical Paper (three hours) in which actual books, or prospectuses, or annotated entries of them, are placed before the student, who is required to classify them by the Decimal and Subject schemes, and in some cases to give alternative classification numbers. If the student has worked carefully through the Short Course in Practical Classification, which forms Part III. of this book, he should now be able to meet this part of the examination.

SOME SUBJECTS SET FOR CLASSIFICATION ESSAYS
SINCE 1906

1. A critical essay on Dewey's Classification, 100-199 Philosophy.

2. The application of exact classification to shelf arrangement.

3. A comparison of the classifications of knowledge proposed by Aristotle, Bacon, Comte, and Spencer.

4. To prepare a scheme of classification for a library of about 10,000 volumes in Philosophy and Religion, using Dewey's Decimal Classification, Brown's Subject, or Cutter's Expansive System, showing the main divisions; then write a preface, explaining to the public the nature of the classification, and the method of using it.

5. A comparative critical account of the classes dealing with Bibliography and Library Science in the Library of Congress (as adapted in the *Union Class-List of the L.A. and L.A.A.*), Brown's Subject Classification and Dewey's Decimal Classification.

6. Prepare a detailed classification of the subjects Engraving and Photography, suitable for arranging a special collection of books and prints illustrating these subjects.

7. The Classification of Technology, with examples drawn from various schemes, and illustrated by titles from actual literature.

8. Compare the Brown Subject and the Dewey Decimal systems of classification.

9. The objects of a subject classification of books to be illustrated by one scheme.

10. Draw up a scheme for a classified catalogue arranged on the Subject (or other) system, for 10,000 books, explaining how far you would subdivide, what indexes you would provide, etc. Then, write a detailed preface, addressed to the public, explaining the classification scheme and how to use it.

A REPRESENTATIVE SELECTION OF THE QUESTIONS SET
AT THE LIBRARY ASSOCIATION EXAMINATION IN
CLASSIFICATION DURING THE PAST TEN YEARS

*On the Logical Rules, Order and Construction of
Classifications*

1. Define the following terms: correlation, denotation, connotation, extension and intension.

2. What are the Predicables of Aristotle as now understood, and what bearing have they on systems of classification?

3. What is meant by extension and intension of terms, and what is their bearing upon classification?

4. Define classification, and explain in what respects it differs from cataloguing.

5. What is meant by the hierarchy of a classification? Explain its parts and the method by which it is constructed.

6. Explain the necessary characteristics of a satisfactory classification scheme.

7. How far is a classification of knowledge likely to differ from a classification of books? Give a typical example of each, bringing out the points of difference.

8. Name some of the differences between philosophical classification and bibliographical classification.

9. What are essential and accidental characteristics in classification? Illustrate.

10. Explain what is meant by "natural order" and by "artificial order": discuss and give examples of each as applied in classification.

11. A classification arranged by accidental characteristics of the things classified would not be so likely to be satisfactory as one arranged by natural characteristics. Demonstrate this with an accidental and a natural arrangement of a subject.

12. State what is meant by evolutionary progression in classification, and give an example from some system devised on this plan.

13. "A perfect arrangement of books is a perfect arrangement of the material of knowledge (subjects) with such practical adjustments (general and form classes, etc.) as the physical form of books demands." Explain this statement.

14. "It is illegitimate to employ two principles of classification, and, when one fails, to have recourse to the other. That is a procedure which must at once give rise to cross-divisions." Illustrate this passage.

15. Demonstrate that the convenience of the user is the essential of a bibliographical classification.

16. What is meant by "form" as compared with "subject" in classification?

17. Explain the following terms : Hierarchy, Schedule, Relative Index, Cross-Division.

18. Is a uniform system of classification for all libraries possible, and, if so, advisable ?

19. Criticise the following statement : " So long as a topic is properly indexed, it does not matter where it appears in the table of a classification."

20. How far should scientific terminology be made use of in the classification of a general library ? Discuss some alternative headings.

21. Discuss the advantages and disadvantages of merging history, geography, and topography in one class.

History of Classifications

22. What great discovery in chemistry was due to classification ?

[This refers to the discovery of certain chemical elements by the " Periodic Law," the development of Newland's " Law of Octaves," which is explained fully in Mendeljeff's *Principles of Chemistry*. For a brief account of this, see an article by L. S. Jast in *The Library World*, vol. xiii., pages 353-5.]

23. Name any two published schemes of classification other than those by Dewey, Cutter, and Brown, ancient or modern ; and state succinctly date, author, and the characteristic features of each.

24. Name three important libraries classified on different systems, and describe briefly any special features of their classification.

25. Explain the importance of Lord Bacon's classification of knowledge, and its influence on subsequent systems, especially on the Decimal system.

26. Trace briefly the history of Bibliographical Classification from Brunet to Brown.

27. Describe the logical ideas or principles underlying the order of the main classes of the classification scheme of Francis Bacon, and of the Decimal, Expansive and Subject schemes.

28. What are the main features of the French scheme of book classification as settled by Brunet and others?

29. Describe any scheme of classification in use in the eighteenth century.

30. In applying the Expansive Classification to a library, where great growth is expected, it is important not to adopt one of the first few expansions of this classification. Explain why.

31. What do you know about the Library of Congress Classification?

32. If you had to reduce the ten classes of Dewey to five, which classes would you throw together, and why?

33. Indicate briefly the difference between the headings (130) Mind and Body and (150) Mental Faculties, in the Dewey Decimal Classification; also between (140) Philosophic Systems and (180, 190) Ancient and Modern Philosophers.

34. Wherein does the Classification Décimale of the Institut International de Bibliographie differ from the Dewey Classification? Explain briefly the special features of the former.

35. Write a short account of the "Subject Classification."

36. Compare the main outline of the Subject Classification with that of the Expansive Classification.

37. A certain classification includes under the heading *Generalia* the following divisions : *Generalia*, *Education*, *Logic*, *Mathematics*, *Geometry*, *Graphic and Plastic Arts*. To what other parts of the classification might some of these headings be removed, and state your reasons for suggesting such alterations.

38. Discuss briefly any scheme for the classification of *Library Economy*.

Notation and Auxiliaries of Notation

39. Define notation, with examples from three systems of classification, and comment upon the axiom : "A pure notation is to be preferred to a mixed notation."

40. Give a brief account of the influence of notation upon the construction of classification schemes.

41. What are the characteristics of a perfect notation ? How far are these met in the *Decimal*, *Expansive* and *Subject* classifications ?

42. The flexibility of a notation is its essential feature. Explain.

43. Is it essential that a classification should provide class-marks for every conceivable topic, or indeed for any topic that has not been treated in print ? Justify your answer.

44. Describe any system of classification which is known to you which is not furnished with a minute notation, and show by examples how you would supply the deficiency.

45. Give a brief history of decimal notation.

46. Explain the chief characteristics of the *Dewey* notation, and give examples of its divisions and subdivisions.

47. Describe the notations of Cutter's and Dewey's classifications and discuss their respective merits.

48. Describe the chief variations in notation between the original Decimal classification scheme and the extended scheme of the Institut International de Bibliographie.

49. What forms are designated by the following marks used in the Brussels Extension of the Dewey classification : (01 to 09), (2 to 9), " ", = 2 to 9, :, A-Z ?

50. Describe the provision made in any modern scheme of classification for the subdivision of subjects by means of marks indicating forms and other qualifications.

51. Give an example in a modern systematic classification of the use of alphabetical order, and state in what circumstances it may be preferable to any other.

52. Describe the means provided in the Decimal, Expansive, and Subject classification schemes for obtaining alphabetical and chronological order within the limits of a topic.

53. Various geographical divisions of subjects can be made in the Decimal, Expansive and Subject schemes, compare them.

54. Explain the Cutter Author Marks. How is their function performed by other devisers of author marks ?

55. What are the Categorical Tables in the Subject Classification ? How are their functions performed in other schemes, and to what extent ?

*The Practical Application of Classification to
Books, Shelves, and Catalogues.*

56. Draft (in outline) a scheme of classification for a collection of books upon (a) Prehistoric archæology ; or (b) The printing arts ; or (c) Library economy.

57. Draw up a table for the minute classification of a collection of books on London, based on the Dewey class mark 942·1, and showing how you would subdivide it.

58. Make a table for further arranging a miscellaneous collection of views of a seaport town.

59. Assume that you have been engaged to classify a library by Dewey. Write a brief essay showing how you would proceed.

60. What is classification by form? When would you classify by form?

61. Discuss the following rule of classification: "Classify by topic; then by form; except in pure literature, where form is paramount." Tabulate the reasons for and against arranging pure literature, irrespective of form, chronologically by authors.

62. Discuss the rule "classify by topic" and illustrate (the example may be imaginary).

63. If you were asked to classify Haldane's *Pathway to Reality*, how would you proceed to ascertain the specific subject of the book?

64. In classifying a book, entitled *Portraits of French Kings*, which of the following characteristics should be selected to determine its place—Standpoint, Language, Literary Form, Specific Subject?

65. How would a collection of Folk Songs, with the music of the melodies only, be classified by the Decimal and Subject systems?

66. Under what Dewey numbers may books on the Child, and on Radium, be placed? Which of these numbers (if more than one) would you choose, and why?

67. In what division of the Dewey classification would you put a collection of regimental histories of the British Army, including its auxiliaries, and how would you arrange the collection?

68. State concisely the arguments for and against dispersing a set of author's works when classifying ; take Carlyle's Works as an illustration.

69. What is the function of the Index in the process of classifying ? In your answer describe the process.

70. " Index all classification decisions." What does this mean ? Explain the various methods of doing it.

71. In how many sizes would you arrange a classified library so as to reduce to the minimum the shelf space required, and how would you differentiate the sizes ?

72. Describe a scheme for the adequate " guiding " to the bookshelves of an open access lending department.

73. What guides are necessary, or desirable, to the classification of an open access reference library ?

74. Give models of class, tier and topic guides in a classified library.

75. Describe two methods of marking the backs of books to show class symbols and subdivisional numbers or letters.

76. Draw a diagram of a classified card catalogue, showing the method of guiding it.

77. What are the principal practical objects sought by the strict classification of books on the shelves ?

78. Which can be the most precise and full (*a*) classification of books on the shelves ; or (*b*) classification of entries in a catalogue ? State the reasons for your answer.

79. What are the relative functions of cataloguing and classification ?

80. In what way does a detailed scheme of classification aid the work of book selection and book annotation ?

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INDEX

The numbers refer to the Paragraphs.

- Abstraction, 10, 22
Accident, 8
Adjustability. *See* Flexibility.
Aesthetics, 136
Agriculture, 181
Aldus, 92
Analytics, 34
Ancient history, D.C., 192
Antiquities, 192
Application of classification,
103-107, 127-128
Applied science, 174
Architecture, S.C., 187
Aristotle, 27; Predicables, 8-12
Art needlework, D.C., 188
Artificial classification, 27
Artistic furniture, D.C., 188
Arts, fine, 186-187
—— recreative, 186-187
—— useful, 180-182
Assur-bani-pal, 64
Author catalogue, 94
—— marks, 53-55

Bacon, Francis, classification,
66, 76, 120
Bible, D.C., 143
Bibliographical classification,
33-107
—— —— definition, 36
Biography, D.C., 192 (2)
—— S.C., 201
Biscoe Time numbers, 56
Bodleian Library classification,
75
Book classification, 1-6, 33, 36
—— —— criteria, 57

Book sizes, 116
Botany, classification of, 27
Bouillaud classification, 67
British Museum, classification,
68-69
Broken order, 115
Brown, J. D., 24, *et passim*
Brown classification. *See* Sub-
ject classification.
Brunet, J. C., classification, 67
Brussels, expansion of D.C., 52

Cæsalpinus, 27
Callimachus, 64
Card catalogue, guides, 102
Categorical numbers, S.C., 39,
87, 140
Characteristic of classification,
15
Chemical technology, D.C., 181
Children's poetry, S.C., 167
Church history, S.C., 196
Class, 8, 22
Class guides, 106
Classification rules, 13-18
Classified catalogue, 34, 92-102
Classifying, rules and methods
of, 105-112, 127-128
Collective biography, D.C., 192
(2)
—— —— S.C., 201
Commerce and communication,
D.C., 181
Composite books, 33
Congress, Library of, cards, 98
Consistent characteristics, 15

- Constitutional histories, S.C.,
200 (c)
- Co-ordination, 31
- Coutts, H. T., 86, 121
- Cross-classification, 15
- Cross-division, 15
- Cross-references, 33-34, 94, 97-99, 128
- Crystals, 27
- Cutter, C. A., 24, *et passim* ;
author-marks, 53
— classification. *See* Expansive classification.
- Cuvier, 27
- Decimal classification, 24, 28, 31, 33, 37, 38, 39, 42, 47, 49, 50, 51, 73-76. *See also* Readings.
- Decisions on S.C., 176, 183, 200
- Dewey, 76, *et passim*.
— Brussels expansion, 52
— classification. *See* Decimal classification.
- Dictionary catalogue, 94
- Difference, 8
- Directories, 192 (1)
- Division, 10, 14
- Dixson, Z. A., Comprehensive subject index to universal prose fiction, 89
- Domestic economy, D.C., 181
- Drama, 164
- Dummy, reference, 107
- Economic science, D.C., 149-153
— — S.C., 154-156
- Education, 154
- Edwards, Edward, classification, 70
- Essential characteristics, 25
- Evolutionary characteristics, 17
- Examination essay, 202 ; appendix, 2. *See also* Test examination.
- Expansive classification, 24, 33, 47, 49, 51, 81-85
- Expansibility. *See* Flexibility.
- Extension, 12
- Fiction, shelving of, 115
- Fine and recreative arts, 186-188
— — — — — D.C., 136
- Flexibility, in classification, 32 ;
in notation, 49 (3)
- Form classes, 38-40, 159-167
- French system, 67
- Generalia class, 37, 130-132
- Genus, 8
- Geography, 192
- Geographical division, 51 ; D.C., 192, ; S.C., 197
- Gesner, Conrad, classification, 65, 92
- Guides, card, 102
— shelf, tier, topic, class, 106-107
- Harris, W. T., classification, 76
- Hawkes, A. J., on D.C., 194
- History, 191-201
- Hopwood, H. V., 76, 113
- Hulme, E. W., on classification, 26*n*, 121, 189 ; appendix I.
- Indexes, classification, 41-42
- Inner form, 40
- Institut International de Bibliographie, 52, 76
- Intension, 12
- Inverted Baconian classification, 76
- Jast, L. S., 27, 63 ; author marks, 54
— classification of Library economy, 77
- Jevons, W. S., 27, 33
- Jussieu, Bernard de, 27
- Knowledge classification, 7-32
- La Fontaine, 76
- Landscape gardening, 187-188
- Language, 159
- Lexicography. *See* Literature.
- Likeness, 10

- Literature and philology, 157-167
 — S.C., decisions on, 167
 Linnæus, 27
 Local division, D.C., 192 (1)
 — S.C., 197
 Logical principles, 7-23
 London Library, subject index, 3
- Manufactures, D.C., 181
 Maps, 192 (1)
 Maunsell, 92
 Merrill numbers, 55
 Metallurgy, D.C., 181
 Mind and body, 136-137
 Mixed notation, 47
 Mnemonic notation, 50-52
 Modern history, D.C., 192 (3)
 Modulation of terms, 14, 31
 Morrison, 27
 Music, S.C., 187
- National numbers, 166
 Natural classification, 27
 Natural science, 37
 — theology, 15
 Notation, 45-56
 Numismatics, 155
- Order, S.C., 174
 Otlet, Paul, 76
 Outer form, 40
 Outlines, Bacon, 66, 76; Bodleian, 75; Brunet, 67; Callimachus, 64; Decimal, 37, 76; Expansive, 81; French system, 67; Gesner, 65; Harris, 76; Jast, 77; Princeton, 75; Subject, 86
- Parallel classification, 116
 Paris booksellers, scheme, 67
 Period divisions, D.C., 192 (3)
 — S.C., 197
 Philology, 159-167
 Philosophy, 135-139
 Pictorial and plastic arts, 187
 Pliny, 27
- Political economy, definition of, 156 (1)
 — science, definition of, 156 (2)
 Porphyry, Tree of, 12
 Practical arts, 180
 Predicables of Aristotle, 8-12
 Princeton University, classification, 75
 Property, 8
 Pure notation, 47
 — science, 174
- Questions, 21, 35, 44, 59, 72, 79, 91, 104, 114, 122, 134, 141, 148, 158, 169, 179, 185, 190, 195, 205
- Ray, 27, 28
 Readings, 20, 34, 43, 58, 71, 78, 90, 103, 113, 121, 133, 146, 147, 157, 168, 178, 184, 189, 194, 204
 Reference dummy, 107
 Recreative arts, 188
 Relative index, 42
 — notation, 49 (3)
 Religion, 142-146
 Richardson, E. C., 24, 26, 32, 202
- Savage, E. A., 118 (3), 121
 Sayers, W. C. Berwick, Canons, 20, 26*n*, 42*n*, 43, 58, 78, 86, 90; Grammar, 63, 202
 Schedule, 23
 Science, applied, 174, 180-183
 — economic, 149-156
 — natural, 172-176
 Sculpture, 187-188
 Shelf classification, 103-107
 — guides, 106
 Shurtleff, N. B., Decimal system, 75
 Sizes, book, 116
 Sociology, 149-156
 Species, 8
 Specific entry, 94

- Specific index, 42
 Stewart, J. D., 55, 86, 118 (3),
 119, 121
 Subject classification, 24, 31, 33,
 37, 39, 42, 86-88
 ———— criticisms, etc., 157,
 178
 ———— practical decisions on,
 167, 176, 183, 200
 ———— *See also* Readings.
 Subject Index, London Library,
 3
 Terms, definitions, 8-16
 Test examination, 170, 206
 Tier guides, 106
 Topic guides, 106
 Topography, D.C., 192
 ———— S.C., 197-200
 Tournefort, 27
 Trades, 180-183
 Travel, D.C., 191-192
 ———— S.C., 197-200
 Unit catalogue system, 98
 Useful arts, 180-183
 Zoology, classification of, 27

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